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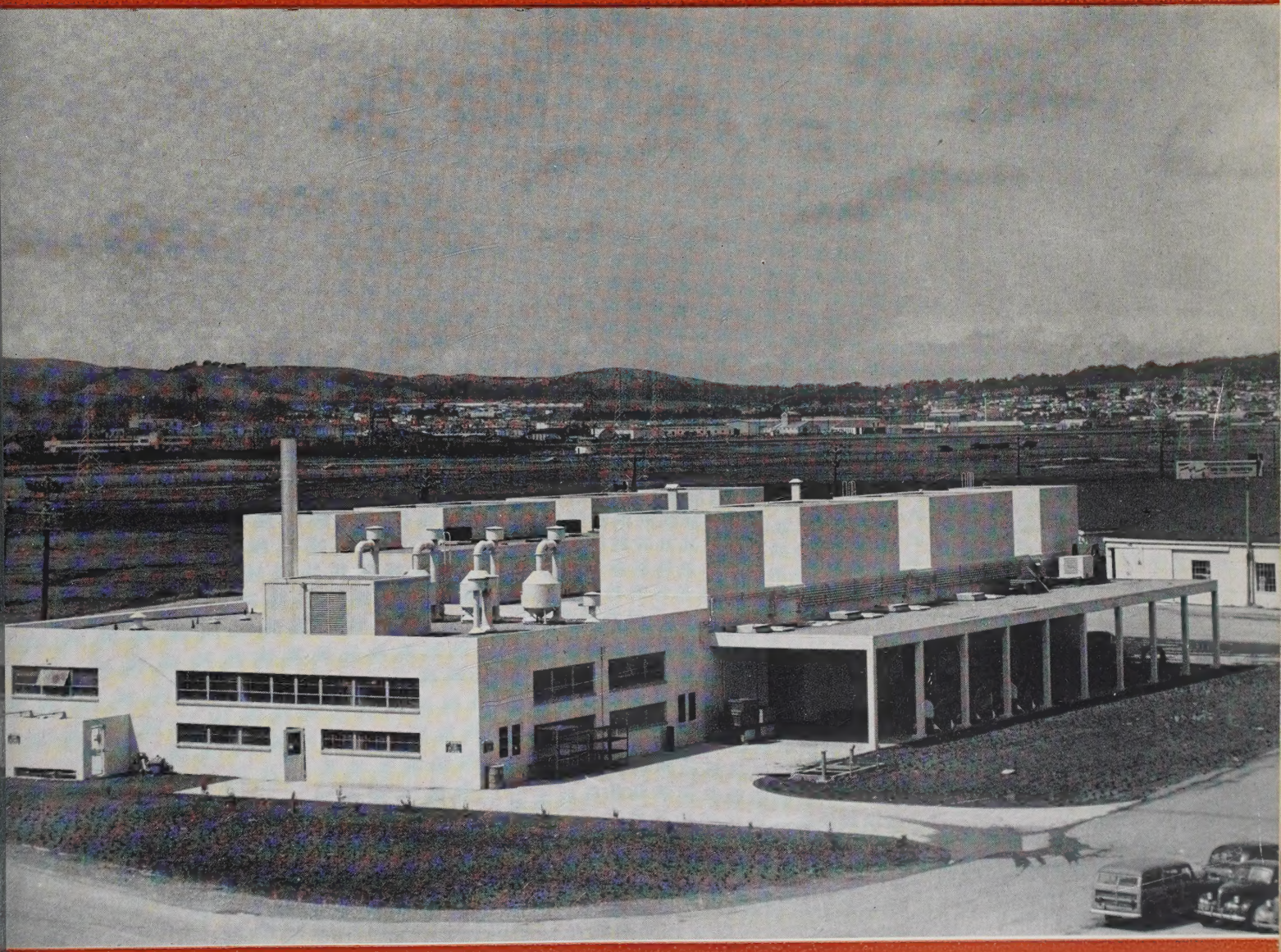
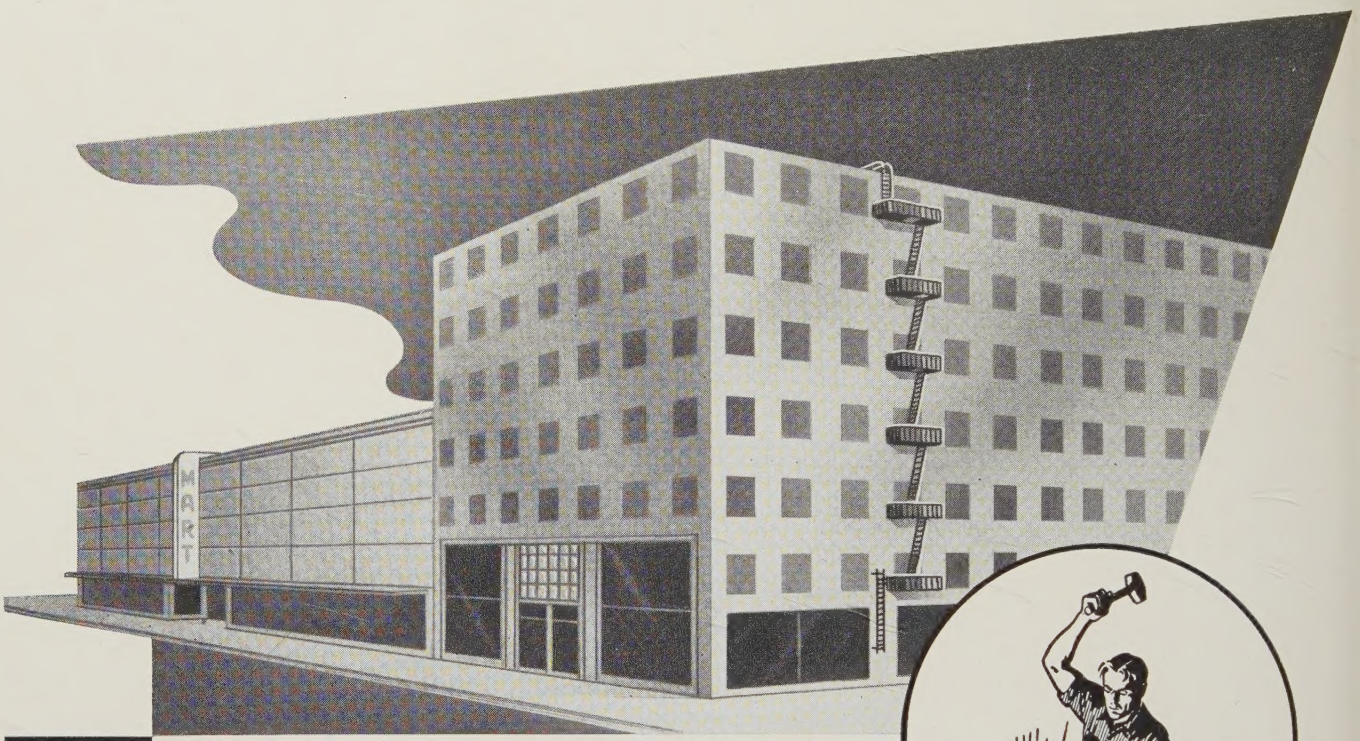
AIRCRAFT ENGINE "U" TYPE TEST CELLS — San Francisco



NOVEMBER 1948

MISCELLANEOUS IRONWORK



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ARCHITECT AND ENGINEER

Vol. 175 No. 2

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JOHN A. BLUME
Structural Engineering

MICHAEL GOODMAN
Planning

JOHN S. BOLLES, A.I.A.
Book Reviews

★

COVER PICTURE:

Illustration shows 16-foot cylindrical "U" type test cells and 108 ft. by 200 ft. reinforced concrete building designed for testing large aircraft engines at the United Air Lines Maintenance Base at the great San Francisco Airport. (See Page 22)

ARCHITECT & ENGINEER is indexed regularly by ENGINEERING INDEX, INC.

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EDITORIAL NOTES

BUILDING COSTS

Citing United States Department of Commerce figures for residential construction put in place, the National Association of Home Builders points out that the inflationary trend of the national economy is steadily pushing the cost of residential building upward, and while the greatly increased total dollar of construction is an indication of tremendous activity in the home building field, the comparative cost of such construction has moved steadily upward.

Increased costs are to be expected with wage increases.

Transportation, general manufacturing, steel, coal and fuel, have all felt the impact of higher wage scales, and while some of these industries may not be directly allied to the construction industry, they have a direct bearing on the national economy and therefore rising costs of production have reflected higher building costs.

According to those within the building field who make a minute study of all phases of the construction industry, there is nothing in the current trend of events to indicate a drop in the costs of residential building within the foreseeable future. They support their position by pointing out the experience of a home builder in the Washington, D. C. area who recently stated "a two-bedroom bungalow which sold for $3,000 in July of 1941, now costs $8,150 to construct."

"Americans love to be individualists. They claim the right to be as good as any King or Prince who walked this earth. They can make their own choice as they think best. No Rulers or dictators tell them what to do."—Thomas Jefferson.

HOUSING

In Great Britain under the current Coalition Government's sponsorship, government housing is experiencing at least two important factors which should be of great interest to those in the United States who advocate a Government Housing program as the only solution to America's low-cost housing needs.

In a recent speech, Aneurin Bevan, Britain's Minister of Health, stated that the total number of homes completed or repaired in Britain since the war had reached the figure of 750,000, and that an examination of this housing figure shows some 743,513 families have been rehoused since 1945 under the postwar program by the construction of new buildings, the repair of unoccupied structures, the repair of war damaged dwellings, and the conversion of existing premises into residential uses.

Mr. Bevan does not disclose, in building support of Government housing, that nearly 20% of the homes made available to families under the program are of temporary construction, nor does he point out that the average three-bedroom house built by the British Public Housing Authority during the last year cost $4,986 to build and that this figure is an increase of $3,448 or more than 226% increase over prewar home construction costs.

Rents under the program, according to "official" records, have increased more than an average of $1.00 weekly over the top rent figures anitcipated by Government officials in setting up their postwar housing program, a figure admittedly well above the prewar rent level.

The reasons advanced by housing authorities for the unpredecented increase in home construction costs are that lumber prices have increased 400%, labor costs have gone up greatly, and overhead costs have risen considerably above anticipated levels.

It is interesting to note that present trends in Britain's housing program is towards the development and construction of entirely new cities rather than slum clearance where Planning Commission studies and surveys indicate innumerable complications and excessive costs.

"KNOWLEDGE is, in every country, the surest basis of public happiness", George Washington.

BUILDING MATERIALS SEMINAR
COLLEGE OF THE PACIFIC

A course on Merchandising Building Materials, given 3 times previously at the College of the Pacific will be run again this Fall. Developed jointly by the Manufacturer-Dealer Coordinating Committee of the Producers' Council, Inc. and the National Retail Lumber Dealers Association this course has been included in the curricula of schools and colleges all over the country.

"The course", according to C. W. Kraft, Chairman of the Technical Information Committee of the Northern California Chapter of the Producers' Council, "includes product information, business subjects, construction and estimating and general subjects of interest to the retail building materials dealer and is designed to train dealer sales personnel."

Raymond H. Brown, a member of the Producers' Council will present the subject of Modular Coordination and Gearge E. Solnar, Jr., Manager of the Clay Brick Manufacturers Association of Northern California will lecture on Clay Products.

NEWS AND COMMENT ON ART

SAN FRANCISCO MUSEUM OF ART

The schedule of events and exhibitions for November at the San Francisco Museum of Art, which is located in the War Memorial Building, San Francisco's Civic Center, includes:

EXHIBITIONS: Twenty-third Annual Exhibition of San Francisco Women Artists, opening November 12th; Paintings by Gordon Onslow-Ford to December 12th, and Landscape Design 1948, November 18 to December 24.

EVENTS will include programs for the children, Famous Films, and Gallery Tours.

M. H. DE YOUNG MEMORIAL MUSEUM

Walter Heil, Director of the M. H. deYoung Memorial Museum, Golden Gate Park, San Francisco, has announced the following schedule of events and exhibitions for the month of November.

EXHIBITIONS: African Negro Art, an important Loan Exhibition assembled from the foremost American public and private collections, closing November 19th; Paintings by George Grosz, close November 29th; Paintings by Lilly Cushing, Paintings and Scrolls by Lo Kit-ling, and Dresses and Accessories of Goldrush Days, through November. A showing of Trends in Textile Design opened on November 6th.

On December 9th a showing of Masterpieces from the Berlin Museums, representing a collection of some of the world's great masterpieces will open. These are the famous salt mine pictures that were located by the American armies in Germany and are being exhibited in cooperation with the Department of the Army of the United States.

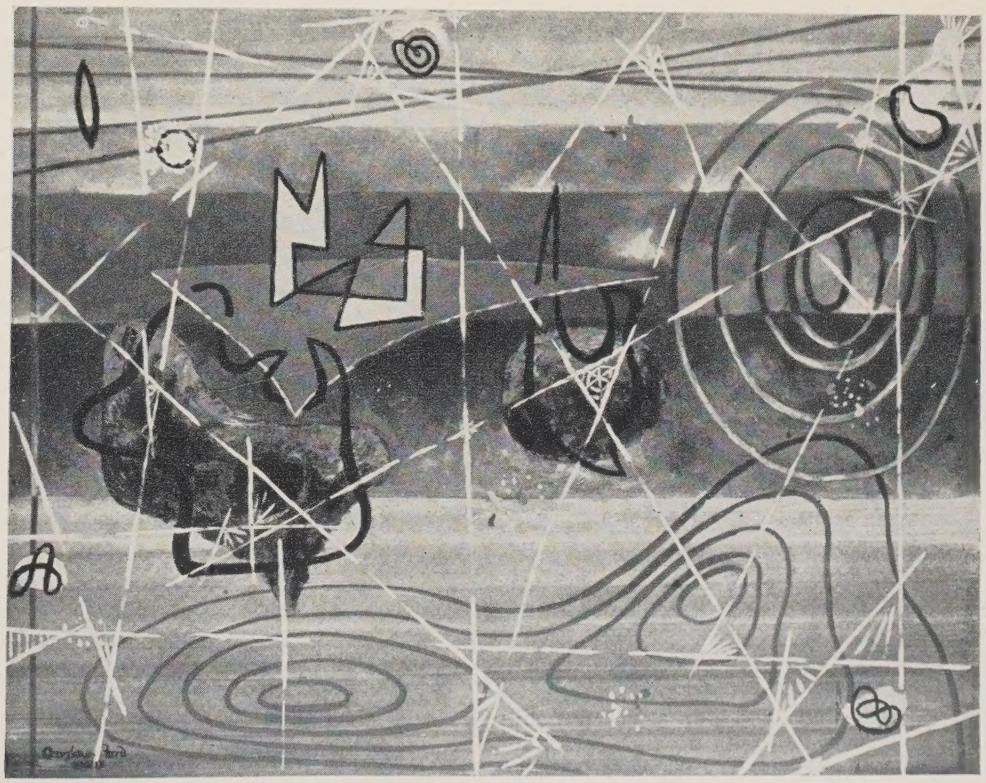
EVENTS: A series of lectures on Appreciation of Textiles, accompanied by illustrated slides and originals, will be given by Dr. Elizabeth Moses, Tuesdays at 3 p. m., November 9, 16 and 23.

SAN FRANCISCO CRAFTSMAN SHOW

The M. H. deYoung Memorial Museum has invited the artists and craftsmen of San Francisco and the Bay Area to submit representative works to be shown in a comprehensive exhibition of Modern Decorative Arts early in the Spring, celebrating the California Centennial.

The exhibition will include furniture, ceramics, textiles, metal work and jewelry with emphasis

A MAN ON A GREEN ISLAND
Oil — 1939 **Gordon Onslow Ford**



From the Exhibition by Gorden Onslow-Ford at the San Francisco Museum of Art

being laid on the strictly contemporary design.

All entries will be submitted to a special committee and jury to be formed in the near future, and all those interested may obtain complete information by contacting Dr. Elizabeth Moses, Curator of Decorative Art at the deYoung Memorial Museum. Entries should be in early.

CALIFORNIA PALACE OF THE LEGION OF HONOR

Thomas C. Howe, Jr., Director of the California Palace of the Legion of Honor, Lincoln Park, San Francisco, has announced the following schedule of exhibitions and special events for November.

EXHIBITIONS: French Paintings from San Francisco collections, November 6-21; European Rooms in Miniature by Mrs. James Ward Thorne, through November; Mobiles and Articulated Sculpture, through November 21st; Photographs of San Francisco by Max Yavno, through November 21st.

ACTIVITIES: Art Classes for children, ages 4 to 15, each Saturday morning at 10 o'clock, with instruction by Katharine L. Parker, Lilly Weil Jaffe, and Frank Lobdell. Adult painting each Saturday at 2:00 p. m., with instruction by Frank Lobdell.

Tours of the Thorne Rooms each Tuesday and Thursday at 10:30 a. m., conducted by Mrs. Laduska Wilson, and each Friday at 2:30 p. m. by Miss Katharine L. Parker. Wednesday Gallery Tours conducted by Mrs. Lilly Weil Jaffe at 2:30 p. m. Mobiles and Articulated Sculpture, November 3rd, 10th and 17th, and Museum collections, November 24th.

Organ Programs by Uda Waldrop every Saturday and Sunday at 3:00 p. m., and Free motion pictures each Saturday at 2:30 p. m.

PORTLAND ART MUSEUM

The president and trustees of the Portland (Oregon) Art Association have announced the appointment of Thomas C. Colt, Jr., as Director of the Association.

A special exhibition of the works of Picasso, Gris and Miro, three Spanish masters, and an evening reception at the Museum recently introduced the new director to patrons of the Museum.

CITY OF PARIS

The Rotunda Gallery of the City of Paris, San Francisco, will present an exhibition of Paintings by Madame Suzanne de Tessan, and an exhibit of Sculpture by Frances Baxter from November 10 to December 4.

Other exhibits include Pictures of the Month by Frank Marvin Blasingame, Paintings of Ships and Horses by Raphaelo Montalboddi, and in the Art in Action Shop a Guatemalan theme will prevail.

ARCHITECTS IN EAST SPONSOR LECTURES

A series of lectures pertaining to Architectural Registration is being sponsored by the New York Chapter of the A.I.A., according to an announcement by Ben J. Small, Chairman of the Chapter's Education Committee.

There will be a general resume of each subject to cover the full scope of the New York State registration. The subjects to be discussed will include Architectural Design, History and Theory of Architecture, Architectural Engineering, Architectural Practise, and Equipment.

AWARDED AMERICAN LEGION EMPLOYER CITATION

The National Steel Construction Company of Seattle, Washington, has been awarded the American Legion's first nation-wide Employer Citation in recognition of its program of hiring disabled veterans.

In accepting the award Frank N. Killien, vice president of National Steel, disclosed that plans for employing disabled veterans were actually made during the war, and some of the company's departments were laid out and set up for employment of the physically handicapped.

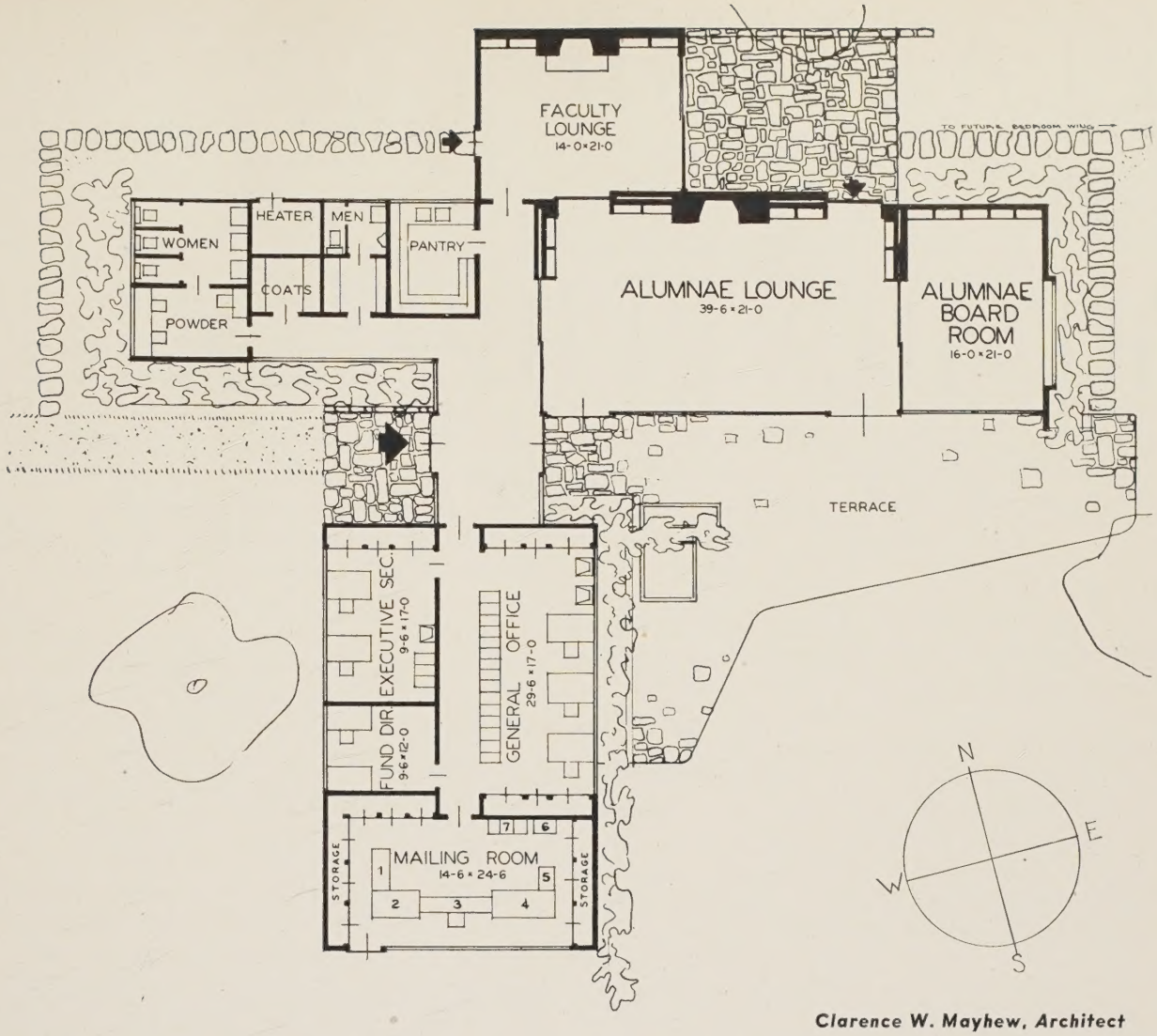
DONATES ARCHITECTURAL LIBRARY TO COLLEGE

Earnest A. Grunsfeld, Jr., Chicago architect, recently donated his library of standard architectural volumes to the Illinois Institute of Technology.

The gift is an important addition to the architectural library and makes available to students some 300 volumes.

ARCHITECT SELECTED

The firm of Appleton & Wolfard, San Francisco architects, have been selected to do the new Parkside Branch Library in San Francisco. Estimated cost $150,000.



Clarence W. Mayhew, Architect

AURELIA REINHARDT
Alumnae Memorial House
MILLS COLLEGE

Oakland, California

Construction of the Aurelia Reinhardt Alumnae Memorial House on the Mills College campus was started early this month under the supervision of John Brown, plant manager and Clarence W. Mayhew, architect.

The building is being erected by the Alumnae Association in memory of Dr. Reinhardt, who served as president of Mills College from 1916 to 1943, and who passed away in January of this year.

Contemporary in design, with natural redwood and stone veneer exteriors and a tile roof, the rambling units will center about one large sheltered terrace and an adjacent smaller one. The building will be insulated and have radiant heating and sound proof ceilings. Veneer paneling, a huge fireplace and glass from ceiling to floor will feature the main lounge.

The Memorial House will contain alumnae business and executive offices, mailing room, lounge, board of directors' room, Women's Faculty Club room, a kitchen-pantry, and power and cloak room totaling more than 5000 square feet of floor

(See Page 30)

PLANNING and RE-DEVELOPMENT of The Larger Community

By WILLIS H. HALL
Chairman, City Plan Commission
Detroit, Michigan

Not many years ago an enterprising city planner captured a brief period of publicity by writing a book entitled "Can Our Cities Survive?" His answer to his own question was, as we might expect, decidedly pessimistic. For my part I must emphatically reject any such conclusion, and I am sure all thinking businessmen will concur in denying the reality of such a fate for our larger communities. But as is often the case, there is just enough truth in such a scare title to merit our serious consideration of the problems involved in the growth and change of our cities, both great and near great.

The trek of people from our farms and countrysides to metropolitan centers is continuing and growing. As these newcomers bolster the inadequate birth rates of the cities and further swell population figures, the cities themselves spread further and further, engulfing new unbuilt areas at one end of the process and leaving wornout, rundown, impoverished areas at the other. Certainly there are few of us who would maintain that our cities today are as attractive, as pleasant, or as good as we might reasonably expect them to be in consideration of our technical knowledge, our wealth and our high standard of living. And these deficiencies are not limited to the amenities. They are just as pronounced in terms of the utilities and facilities provided for living, for working and for carrying on business. In witness thereof I might mention our traffic congestion, high accident rates, local transportation costs and fire losses.

But just as surely as our cities are not doomed by their inherent weaknesses nor glorified by their own beauty and perfection, there are real and ever-present opportunities for gradual but continuous improvement so as to ever more closely approach realizable ideals. Proper planning is the first and in many respects the most important step in modernizing and beautifying our cities.

It is axiomatic that planning is preparation for action. This means that a plan not realizable or capable of being executed is not a plan at all, but merely a dream. City planning, therefore, to merit the name, must be realistic and practicable. In laying out plans and programs for the best possible improvement and development of a community, city planning must recognize all the conditions and circumstances of the situation, and limit its proposals and objectives to those attainable under its tools of effectuation, legal and financial.

I have outlined my philosophy of city planning at some length because I believe this approach is

(See Page 34)

LIGHTWEIGHT CONCRETE CONSTRUCTION

**Note: The following address was delivered by Mr. Murray Erick before the Structural Engineers Association of Northern California in Oakland, California, on September 14, 1948.*

Light weight concrete and vermiculite plaster fire protection were used primarily for economic reasons, in the building of the General Petroleum and Prudential Insurance Buildings in Los Angeles.

Preliminary studies indicated a dead weight saving of approximately 30 per cent in each building, thereby effecting considerable savings in structural steel, reinforcing steel and footing costs.

Preliminary estimates indicated a cost premium for light weight concrete of less than $5.00 per yard, and the costs of vermiculite plaster fire-protection of beams and columns to be substantially less than the costs of concrete fire-protection.

Exhaustive tests have been conducted during the past few years, by both the Underwriters Laboratories and the Bureau of Standards, whereby fire protective ratings are soundly established for the various uses of vermiculite plaster.

During the past several years, I have become pretty thoroughly convinced that the construction industry has ben largely stagnant and is fast approaching one of the most critical periods of its life.

Sure, we have a higher quality of steel, cement and many other manufactured products. We have construction equipment far superior to that in use only a few years ago. Still, we are getting less production per man hour of labor in most trades than at any time in the last twenty-five years. We are using nearly as much steel and cement and many other costly materials as we were using ten or twenty years ago.

Building codes are, in many respects, as out moded as a Model T Ford. Consequently, building costs have pyramided to a point that only a relatively small percentage of prospective owners can afford to build, and then only in cases of dire necessity.

The Construction Industries rank second only to agriculture in importance in the nation. Consequently, it is probable that a major recession in construction activities might well be the beginning of another serious depression. Unless something is done to stop the fast mounting spiral of building costs, the public will not be able to build and a recession in the industry is inevitable.

In the design of the General Petroleum and Prudential Insurance Buildings, we have made a feeble start toward effecting economies and modernization of construction. There is a lot of ground work to be done yet before full advantage can be taken of the possibilities developed in these two buildings.

Light weight concrete isn't new.

Cinders, Haydite, Rocklite, Pumice and Airox have been used as aggregates for light weight concrete in ship construction, bridges and many buildings for more than thirty years, and have been proven structurally sound.

In the past five or so years, the use of light weight aggregates for concrete and vermiculite for plaster and fire protection has been rapidly expanding and has been given a great deal of publicity, some good and some not so good.

Some building codes have been revised to permit the use of light weight concrete and of vermiculite plaster fire protection.

There is still a lot of work to be done in the modernization of building codes and in the education or enlightenment of the construction industry before we can take full advantage of the possibilities of light weight building construction.

A lot of the ground work, so necessary to the recognition of new materials and methods of construction, the economics thereof and the justification for drastic revisions in building codes, has already been done. During the past four years I have been assembling some of this more important data, of which the following is only a part:

1. An article by the Vermiculite Research Institute, of Evanston, Illinois, entitled "The Contribution of Vermiculite to Fire Protective Construction."
2. An article published by the Vermiculite Research Institute entitled "The Use of Vermiculite Plaster and Concrete for Fire-proofing Steel Structures," dealing specifically with the Mercantile Bank Building, Dallas, Texas.
3. Letters of approval by the Board of Building and Safety Commissioners of the City of Los Angeles of vermiculite plaster fire protection of structural members in a Type I building.

4. An article in The Wall Street Journal of April 22, 1948, entitled "Lightweight Building."
5. An article in the July, 1948, issue of the Architectural Record entitled "Light Weight Aggregates."
6. A report by the National Bureau of Standards (U. S. Department of Commerce) entitled "Building Materials and Structures—Report BMS82."

Of this data, Items 1, 5 and 6 are, I believe, of sufficient importance to warrant a briefing of them here.

Item 1 summarizes the results of fourteen fire tests of various structural elements wherein vermiculite plaster was used as fire protection. The fire resistive ratings and the authority therefor are given in a clear and concise tabular form.

Item 5 is an excellent technical paper on practically all of the light weight aggregates. The characteristics of each of the materials, weights, concrete strengths, limitations of use, etc., are quite thoroughly covered.

Item 6 is, in my opinion, one of the most important and interesting documents on fire-resistive standards that I have ever seen. This document was published by the National Bureau of Standards in 1942 as a guide to the construction industry and building departments in the revision of building codes and the modernization of building construction.

Chapter III summarizes the results of surveys of the combustible contents of buildings of various occupancies. It is interesting to note that, with rare exceptions, the weight of combustibles in any of the light occupancy buildings does not exceed 15 pounds per square foot of floor area. Fifteen pounds of combustibles per square foot of floor constitutes a potential fire severity hazard of only one and one-half hours, according to the committee's report.

The National Bureau of Standards in this bulletin recommends that the fire-protective requirements in the buildings be consistent with the prevailing fire hazards.

Table I of Chapter I sets forth their recommendations of fire protection for the structural elements of Type I buildings.

This information, from an authoritative and unbiased source, has been available to us and building department officials for six years, and still we are spending the owner's money in providing fire protection far in excess of these recommended standards.

As I stated earlier, we have only made a start toward the possible ultimate in light weight building construction. Proper revisions in building codes must come first, and it is up to the construction industry to lay aside the petty interests of various branches of the industry and force the adoption of essential modern revisions of our codes.

I want to repeat here a few figures developed in our preliminary work leading up to the use of light weight construction in the General Petroleum and Prudential Insurance Buildings.

Light weight concrete of 2,500 pound compressive strength weighs 95 pounds per cubic foot, as against 145 pounds per cubic foot for stone concrete. The cost premium was, roughly, $5.00 per cubic yard.

Vermiculite plaster fire protection of beams and columns weighs approximately 10% of the weight of stone concrete fire-proofing and costs considerably less. For example, concrete encasement of an 18 inch wide-flange 50 pound beam weighs 225 pounds per foot of beam and costs $3.50 to $4.00 per lineal foot. Vermiculite plaster fire protection of this beam weighs only 23 pounds and costs $2.60 to $2.80 per lineal foot. This weight saving is 10% of the load carrying capacity of the beam on a 25 foot span. With beams at 8 foot centers, it represents an average dead weight reduction in the building of 25 pounds per square foot of building area. With structural steel at $200 per ton, it is readily seen that the fire protection costs of a building closely approximate the costs of the structural steel.

The summary of dead weights and design live loads of the General Petroleum and Prudential Insurance Buildings has been well publicized, but since these figures tell the story of light weight building construction in a few words, here they are again:

General Petroleum Building

Dead weight as designed	25,800 tons
Dead weight saving	13,100 tons
Design live load 1st story columns	8,300 tons

Prudential Insurance Building

Dead weight as designed	32,000 tons
Dead weight saving	15,600 tons
Design live load 1st story columns	14,300 tons

Structural steel saving each building, at least 1,000 tons.

In closing, let me again stress the vital necessity of a united effort by the entire construction industry to modernize building codes and construction methods before the saturation point in costs starts a recession in the No. 2 industry of the country.

NEW TELEPHONE EXCHANGE. The Pacific Telephone & Telegraph Company have awarded a contract to Johnson, Drake & Piper of Oakland (California) for the construction of a $415,000 addition to the San Rafael telephone offices. Clark & Beuttler, San Francisco, are the Architects.

ANNUAL CONVENTION

Structural Engineers Association

OF CALIFORNIA

Santa Barbara, California

One of the best conventions ever held by the Structural Engineers Association of California was held in Santa Barbara on October 21st to 24th, with more than 216 structural engineers and their wives in attendance.

Opening with a Public Relations Program, John Blume, president of the Northern California Chapter presiding, the convention got off to a good start with Henry Powers, chairman of the Public Relations Committee of the Southern California Chapter, speaking on the subject of Public Relations as it applies to the structural engineers and the proposed formation of a public relations committee of the state association to coordinate the efforts of the engineer groups. Lary Wise, assistant editor of Engineering News-Record spoke on the responsibility of each engineer in improving the public relations of his firm and profession, and Paul Jeffers of the State Board of Registration also spoke on the subject.

The association emblem, a project initiated by the Northern California Chapter was presented by John Blume and unanimously endorsed. The report of the committee appointed to draft a new state constitution was given by George Brandow in the absence of A. V. Saph, chairman, and while accepted by the convention must be ratified by each of three Chapters before final adoption.

Committee reports included Engineering Seismology by John A. Blume, secretary of the Advisory Committee on Engineering Seismology, George Housner of the SEACSC, and W. K. Cloud presented a paper by Franklin P. Ulrich on activities of the U. S. Coast and Geodetic Survey.

Henry J. Brunnier gave an interesting and instructional report on the recent conference with Japanese seismologists and engineers on the Fukui earthquake at which he was an official representative from the United States.

Light weight concrete and numerous other subjects of keen interest to the engineers were discussed and considered, while the special entertainment provided for delegates and guests contributed considerable towards making the conference a success.

Northern California Chapter representatives included John A. Blume, president; Jessie Rosenwald, vice-president; George E. Solnar, secretary, and directors Arthur W. Anderson, Hanry J. Degenkolb, William W. Moore, and many others.

Southern California Chapter representatives included S. B. Barnes, president; Harry Bolin, vice president; Lewis Osborn, secretary-treasurer, and general convention chairman Don Shugart.

The Central California Chapter, which was in attendance for the first time since its inauguration, was represented by L. C. Hollister, president; Arthur A. Sauer, vice president and a good delegation.

PRODUCERS COUNCIL
Northern California Chapter

The Annual Christmas Jinx of the Northern California Chapter of the Producers' Council will be held on December 1st at the Claremont Hotel in Berkeley, California, according to Joe Carlson, President.

Committees in charge of this year's event include Wayne Rawlings, Chairman of the Banquet; Art Staat, Ticket Chairman, and Jerry Barr, Golf Tournament Chairman.

A steller program of entertainment has been arranged according to all advance information.

View from Sacramento River Bank

Photos by R. M. Yelland

Mr. and Mrs. W. R. Heringer

SACRAMENTO COUNTY, CALIFORNIA

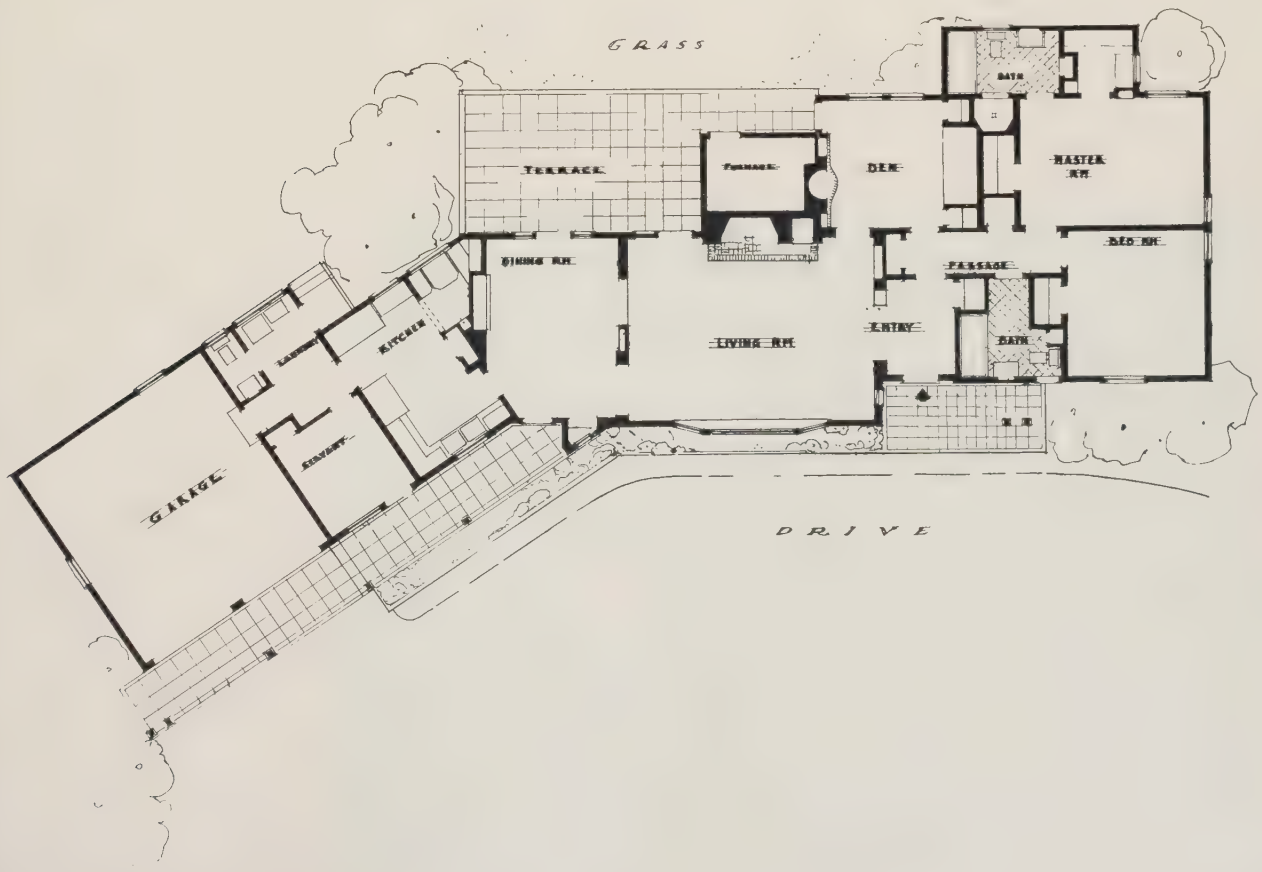
Covered Areas at the Front of the House

"The COUNTRY HOUSE"

W. R. YELLAND, A. I. A. Architect

The Heringer house is a ranch house located a few miles above Walnut Grove along the banks of the Sacramento River. Due to a slight curve in the river bank and the curve formed in shaping the house a rather pleasant elliptical basin appears when seen from the banks of the river. This piece of ground is beautifully shrubbed and planted and forms the forecourt for the house. An entrance drive circles the garden and extends to the garage.

The house comprises 8 rooms, all of which are strung out to give as long a horizontal line as possible to conform with the flat stretches of land seen beyond. Terraces and covered walks have been incorporated in the scheme, desirable features in the warm Sacramento Valley.



HERINGER HOUSE . . .

The Heringer Living Room, looking toward Entry Hall and Den.

Exposed overhead beams, and fireplace.

The exterior of the house is composed of several materials. The dominating material is stucco. However, considerable board and batten and rough brick are found as a backdrop for the curved areas. The roof is shingled. While the ridge is not straight or level, an effort has been made to form all irregularities in a smooth line. The interior is composed of materials comparable to those of the exterior, namely plaster, brick and wood. These materials have been carefully blended by weathering and coloring so that one passing through the house may be conscious of a craftsmanship, yet does not realize the association of different materials used in combination.

Room arrangement is such that the bedroom space is augmented by a den which may be closed off from the living part of the house when desired. An entry hall separates the bedroom and den from the living room. The utility part of the house and the servant room are purposely arranged in conjunction with the garage so that supplies arriving may reach the kitchen without undue cartage. Maintenance and operation of the house have been made simple by installation of mechanical appliances wherever possible.

Entrance Porch To Residence

SURVEY SHOWS MANY NEW BUILDING PRODUCTS

An impressive array of new and improved building products resulting from the multi-million dollar research activities of the building industry is described in the latest economic study of the Construction Industry Information Committee.

The study covers a wide range of building products, including: floor, wall and roofing materials; plumbing, heating and ventilating systems; construction metals and electrical products.

Within the six months since the committee's economic consultants began their fact-finding program, a dramatic series of reports has been issued and has received wide public acceptance on the merits of its sound, factual approach.

The current study rounds up the results of extensive research and development by individual companies, as well as by their trade associations, in cooperation with government agencies and educational institutions.

Floor, wall, and roofing materials—the specialty finishing products—are outstanding for progress in economies of manufacture, greater durability and flexibility, and more pleasing color and appearance.

Some of the findings of the committee's survey are:

Until the early 1920's there was only one general insulation product—a "quilt" of fibers stitched between sheets of heavy paper, effective enough but expensive. Insulation materials are now available in the form of blankets, batts or large pads, loose granules, or rigid sheets which can take the place of wood sheathing, giving the owners of homes and other buildings a wide selection from which to meet specific insulation needs.

Acoustical products are now available for every type of use. Research determined the best materials to absorb sound of different frequency ranges under different conditions. Acoustical plaster is used in new construction. Perforated tiles are easily and quickly installed in completed buildings, and are used in new construction as well.

Asphalt tile has been made so flexible it may be used on ordinary wood subfloors and is now available in lighter colors, as a result of research which found a way to replace asphalt with synthetic resins. Asphalt roofing has been made more durable.

Soft floor coverings, such as linoleum and composite tile, have likewise been greatly improved in color and durability.

Asbestos, formerly a minor material except for pipe and tank insulation, is now combined with Portland cement to produce flat and corrugated board for exterior siding which is weatherproof and fireproof. Painstaking research has brought great improvement in asbestos shingles and in the use of asbestos for underground pipe and conduit.

Vitreous china plumbing fixtures have been made stronger, and acid-resisting enamels have become standard for enamelled iron sinks. Careful, detailed work has been done on the simplification of plumbing piping.

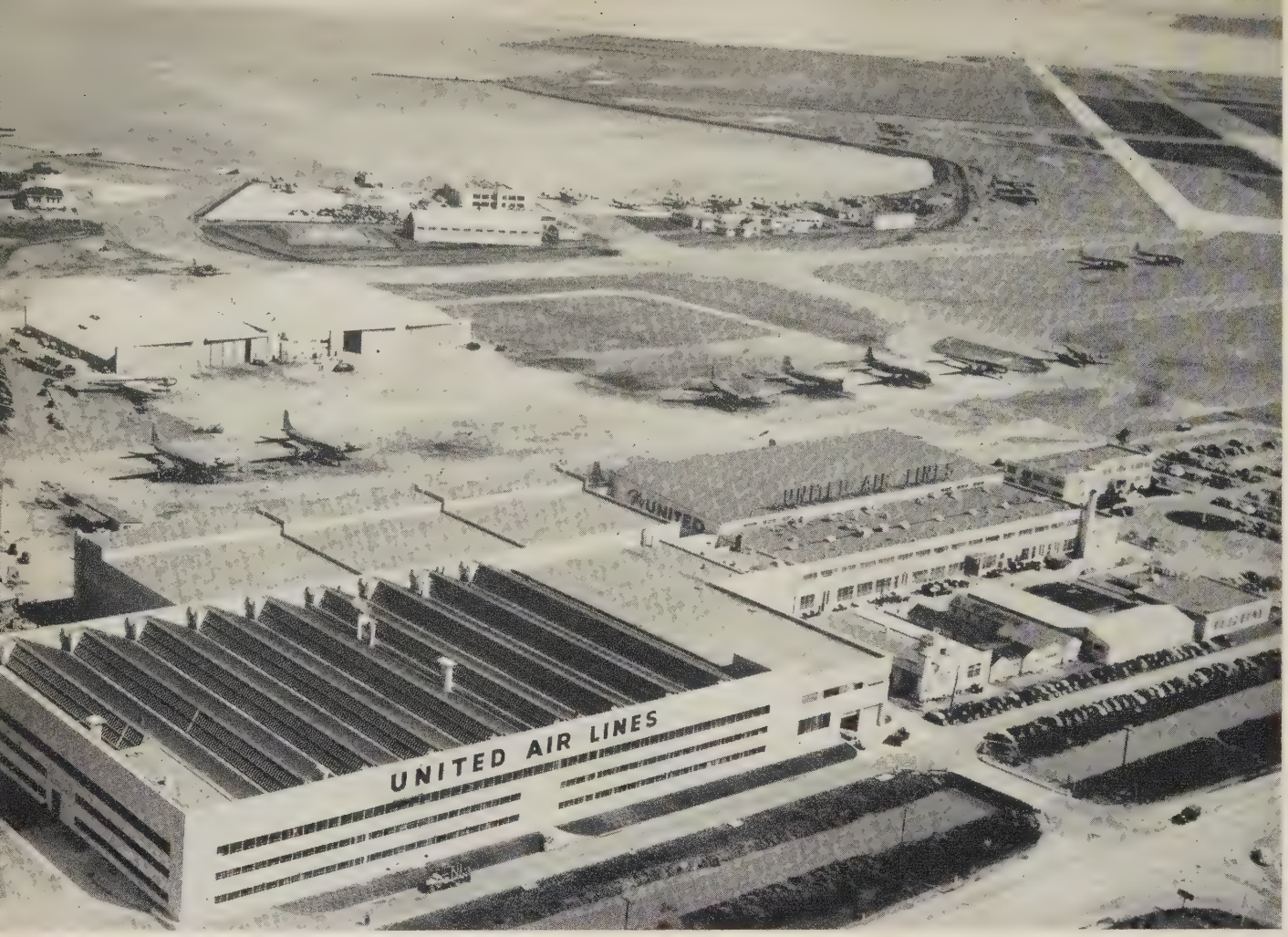
Every type of heating system has reached high standards of performance, and the manufacturers themselves have participated in study projects designed to reject inefficient systems and to assure the most efficient installations of their products. The evolution of steam and hot water radiators, warm air systems, furnaces and boilers, and automatic firing devices to their present efficiency has resulted from consistent experimental work. Radiant heating is a recent development, adding to the many choices of heating systems now available. Ingenious devices control temperature to an almost perfect degree in all types of buildings. Air conditioning is only about 20 years old but has been developed so expertly that it has established a new standard for some types of manufacturing operations, as well as the recognized standard of comfort for retail establishments and other places serving the general public.

In the fields of construction metals, recent emphasis has been on the development of light materials for light loads, bringing economy both in the use of material and in handling by labor, and in many cases greater convenience to owners of buildings.

Some of the developments have been: light steel framing for house construction; light gage steel structural floor systems giving easy accessibility to electric wiring for the changing needs of tenants; aluminum alloys for vertically swinging garage doors, double-hung and casement window sash, revolving and swinging doors, frames, roofing, siding, flashings, eaves troughs and downspouts, and all kinds of ornamental work; the use of aluminum and magnesium for light-weight power tools and other more efficient construction equipment.

Steel and iron applications in construction have

(See Page 30)



"WORLD'S FINEST" Aircraft Maintenance Base

Photos Courtesy The Austin Company

UNITED AIR LINES
MAINTENANCE BASE
SAN FRANCISCO, CALIFORNIA

Hailed as the world's finest and most modern, a huge new "push button" airline maintenance base was recently completed and dedicated by California's Governor Earl Warren and W. A. Patterson, president of United Air Lines at San Francisco and today is contributing its full share to top-flight operating efficiency.

"Maintenance hub of the Main Line" is what officials call the veritable aircraft factory where as many as 11 Mainliners can be overhauled simultaneously. Actually, the place is a sort of "house of magic"—declared to be at least seven years ahead of its time—where an array of new devices and methods have been brought together to produce "new" planes at periodic overhaul intervals.

Situated at the north end of San Francisco's Municipal Airport, the base covers 116 acres on which there are 700,000 square feet of buildings.

Gathered here are approximately 1,400 experts in all phases of aircraft maintenance—craftsmen who have the "know how" born of years of ex-

perience. According to F. A. Page, manager of the base, it is expected their number will be doubled within the next five years as all United's maintenance activities are concentrated at San Francisco and as the company's fleet continues to grow.

Right now, all United's 70 four-engined DC-6 and DC-4 Mainliners and Cargoliners are maintained here while the company's 74 twin-engined DC-3 planes are maintained at Cheyene. The Cheyenne operation will be closed by the end of this year, at which time all Mainliners and Cargoliners will be handled at San Francisco.

Housed in the two-and-a-half story steel and concrete buildings and hangars of the big base are innovations which, introduce a new era of efficiency in aircraft overhaul—an efficiency being reflected in flight performance. Civil and military aviation leaders from all parts of the world have been visiting the base to study its many features.

The most spectacular feature, perhaps, is a "push button" maintenance dock embodying a system of suspended metal catwalks which completely surround a DC-6 so that such planes can be moved into the hangar and put in readiness for the overhaul crew in a matter of minutes instead of hours.

Elevators connecting this dock with various overhaul shops, overhead conveyors in the shops, new and novel machinery, an elaborate lighting system, a modern color scheme throughout and a production line system which provides a smooth flow of work from start to finish make the establishment, in truth, "tomorrow's maintenance base today."

Buildings include a major two-and-a-half story structure, having a full frontage of 650 feet, which houses offices, shops and six airplane docks, two separate overhaul hangars, and a building housing six engine test cells.

The three newest hangars at the base, including the "push button" dock, each measure 130 by 130 ft. Height is 48 feet; door clearance, 35 feet, which allows the towering Mainliner 300 rudder to slip in with a five-foot leeway. The big Boeing Stratocruisers which will start taking the United's routes early in 1949 have 41-foot high rudders. However,

CONTINUOUS horizontal bands of projected steel sash emphasize the length of this new shop building with more than a quarter of a million square feet of floor space is devoted to the overhaul of aircraft engines and other airplane parts. Corrugated asbestos siding as been used throughout the structure, which has an overall length of 485 feet.

MODERNISTIC

Entranceway is of modernistic architectural design and concrete construction thereby combining utility and beauty.

(United Air Lines Photo)

a folding device on the rudder post will enable them to have use of the same hangars.

A Mainliner 300 (DC-6) comes into the base for overhaul after every 700 hours of flying; a Mainliner 230 (DC-4), after every 1,000 hours. This means that, about every three months, each plane in United's fleet is completely overhauled from engines to cabin upholstery, from instruments and radio equipment to its outside paint. Such major overhauls are in addition to periodic inspections and checks given all planes at line stations. In addition to a thorough check of every plane at every stop, more exhaustive checks are performed between every 25 and 45 hours of flying, before completion of 80 hours, and before completion of every 150 hours.

From the time a Mainliner enters the base, it receives all the solicitious care which trainers give thoroughbred horses.

You see the big DC-6 move up to the massive doors of the hangar. A push of a button sends the doors folding upward in just 15 seconds. A small tractor attached by a tow-bar to the Mainliner pulls the big plane (wing spread, 117½ feet; length, 100 feet, 7 inches) along a white center line into the "push button" dock. So snugly does the plane nestle into the dock's forward platform that it is difficult to see where the plane stops and the platform begins.

Hydraulic jacks lift the plane several inches off the floor and catwalks are lowered from a metal framework on either side of the plane. Next, a

giant metal framework is lowered from the ceiling to fit like a glove around the entire tail assembly. This framework actually consists of two units which fit on either side of the empennage. Each unit weighs almost a ton, but is moved down into place smoothly and evenly by electric power. Next, a hydraulically-operated ramp comes up from the floor to connect with the long catwalks at the level of the main cabin door.

Within 10 minutes from the time the giant craft first nosed its way through the big hangar door, as many as 50 workers are swarming all over it. Their tasks are made easier by lights mounted in the floor and by a battery of more than 220 mercury arc and incandescent lamps in the ceiling.

Everyone knows his particular task. Electric hoist operators prepare to lift the four engines off their mounts even as mechanics are unfastening connections. Cabin maintenance crew members begin removing all chairs, wall upholstery and carpets. Radio and electric instrument technicians start taking out equipment which will go to their respective shops. Painters are removing insignia and other outside markings from the wing, fuselage and tail preparatory to repainting with the aid of giant stencils. Other workers are removing the tires. Still others are checking the wing stabilizer and control surfaces for superficial dents.

Engines of the Mainliner are moved on engine and mount dollies along the same hangar level to a vast power plant department. There they are made ready for a "Saturday night bath" deluxe. Meanwhile, seats, electrical equipment and other parts are placed in elevators and whisked to ramps which lead directly to the honeycomb of shops.

SEVERAL HUNDRED members of the engineering and production staff attached to the base occupy this large second floor office area, located at one end of the shop building. Continuous runs of concealed fluorescent lighting, mounted flush with the acoustic ceiling on ten foot centers, delivers uniform illumination of 60-foot-candles throughout the office area, which is also fully air conditioned.

All of the operating controls and metering devices required for engine testing in the new "test cells," are grouped around double-glazed observation windows in compact and convenient arrangement. Six control desks, similar to one illustrated above, are paired in the control passages extending through the cell block. Sperry controls (left foreground) and potentiometer is mounted flush on desk at right with slant gauge directly above window. Engine in position for testing is seen in test cell.

After a quick steaming to remove outside layers of grease and dirt, the engines are disassembled and parts are strung along a 1,280-foot overhead chain conveyor. From reduction gear and cylinders to the front support plate and main crankcase, the engine is reduced to so many parts. Those which cannot be hung directly on conveyor hooks are placed in screened-over metal trays attached to the conveyor.

Slowly, a few inches per minute, the electrically driven conveyor moves engine parts toward a unique piece of equipment called an engine washer tank—a 160-foot long hairpin-shaped affair containing 30,000 gallons of a strong detergent solution. Into the tank go the parts, to emerge five hours later, scrubbed cleaner than a mother could hope to scrub behind junior's ears.

In other sections of the department, cylinders and other parts are tested for flaws and any changes in size down to one ten-thousandth of an inch. After that, they are strung on a 1,650-foot conveyor where they remain until time for reassembly. Parts of each engine are kept together. Replacement parts may be installed, but not parts from another engine.

Engine parts are replaced primarily on the basis of their condition and regardless of the time they have been in service. By such replacements, a Mainliner engine becomes virtually new after every five or six overhauls.

United's big base can process up to eight complete 18-cylinder engines a day—as it must in order to take care of the nearly 600 engines in the company's fleet. By the way, those 600 Pratt & Whitney twin-row and double Wasps have

enough total power to drive four aircraft carriers of the Midway class or 16 modern destroyers with ease.

After reassembly of the engines, they are taken to the test cell building where they are run-in for four and a half hours before being recertified. Refrigeration and heating equipment in the test cells permits technicians to determine engine performance under the widest range of climatic conditions.

In a shop adjoining the test cells is something else new to airline maintenance—80 tons of machinery, from air decompressers to electric motors and heavy test chambers, employed in checking the functioning of carburetors. By this means, the performance of the carburetor under flight conditions can be thoroughly studied on the ground. In a decompression chamber, altitudes of up to 50,000 feet can be simulated.

While engine overhaul has been taking place, propellers from the Mainliner 300 have been overhauled and checked. Each blade has been removed and polished if necessary. Electric de-icer boots have been checked with resistance meters. Reassembled propellers then have been sent by overhead conveyor for further checking in a special balancing room.

Radio equipment, instruments and electrical devices from the Mainliner have gone to a department which is as vast as it is intricate. In the instrument section of this department, an electric-grid filter removes dust from the air. Also, blowers keep the room pressure slightly above atmospheric pressure so there will be no chance for dust to seep in when doors are opened.

In this department, radio sets are calibrated in specially insulated rooms; altimeters are reset in

GROUND FLOOR SHOPS with a ceiling of 22 ft. 3 in. maintained to accommodate the extensive system of continuous chain conveyors and monorails required to handle engines and engine parts during all phases of overhaul and cleaning. Continuous runs of fluorescent lighting units extend the full length of the 27-foot wide aisles for an overall distance of 480 feet. The stairway at the left leads to a mezzanine from which persons in charge of engine overhaul can maintain visual control of operations on all sides.

special decompression chambers; generators and hydraulic systems are checked, and automatic pilots are given deflection tests on special benches. Such benches, chambers, test cells and other devices help keep the nerve and artery systems of the modern airliner functioning.

The cabin overhaul shop features an 84-foot-long cutting table on which literally dozens of fabric patterns can be cut at one time. When it is realized that the normal life of a Mainliner chair's upholstery is only one year, the task of this department can be appreciated. Cloth used each year in this shop would make nearly a 40-mile-long carpet, one foot wide.

Electro-plating, welding, tire and other shops contribute their full share in getting the Mainliner back into the air. Tires, incidentally, are replaced at each overhaul.

In four days, the Mainliner is ready to leave the dock—a "new airplane." It does not wait for its original engines; a newly overhauled set has been installed. While in the dock, the plane itself has been inspected in minute detail. Wiring for the cabin lighting system has been studied inch by inch for possible flaws in insulation; windows have been checked and summarily discarded if they have shown the beginnings of the tiniest crack or have been loose in their mountings.

Test pilots take the Mainliner aloft for a four-hour check flight after overhaul. Accompanying the flight are technicians who check the functioning of radio, instrument and electric equipment which has gone through their shops.

Such is the overhaul of a Mainliner at the "big base."

Nothing which can contribute to the highest standards of maintenance has been overlooked here. Heating and air conditioning systems maintain proper temperatures throughout the base. Lighting is varied—mercury, fluorescent and incandescent, used separately or in combination. Total illumination is approximately 262,500 candlepower, enough to light nearly 2,000 average homes. The electric wiring of the base—from cables as thick as a man's wrist to slender lamp-type cords—would stretch out for 120 miles.

Visitors are particularly impressed with the color scheme. Varying shades of blue, green and gray alternate from wall to wall, from hangar to hangar, from shop to office—affording a new concept for factory-like structures.

Construction of the "maintenance hub of the Main Line" began as long ago as 1940 and its development was pushed in 1942 when United began flying four-engined planes across the Pacific under contract for the Army Air Transport Command. Latest additions were started about a year ago. Chiefly responsible for design of the base was Nicholas Boratynski, regional engineer for United.

STATE OF CALIFORNIA SEEKS ENGINEERS

Civil Service examinations for Assistant Safety Engineers (Electrical) and Associate and Senior Communications Engineers have been scheduled by the California State Personnel Board for November 30, December 2nd.

Complete information is available from the Board's office at 1015 L Street in Sacramento, California.

NATIONAL JOINT COOPERATIVE COMMITTEE ANNOUNCED

The American Society of Civil Engineers and the Associated General Contractors of America have established a new National Joint Cooperative Committee.

Purpose of the Committee is to study matters of mutual concern to civil engineers, general contractors, and the public with a particular view to recommending procedures for carrying out construction more economically.

Scheduled for consideration and study are: Construction courses in engineering colleges to train men for construction; making work in construction and designing public works attractive to young engineers; Standard contract clauses for engineering construction clearly understood by engineers and contractors clear and definite specifications clearly understood by all parties; design which can obtain maximum benefits from mechanical construction operations, and equitably and clearly understood bidding and awarding procedure for engineering construction.

APPOINTED

G. L. Tuve, President of the American Society of Heating and Ventilating Engineers, has been appointed chairman of the Advisory Committee for the 9th International Heating and Ventilating Exposition which is to be held in Chicago, January 24th to 28th.

The exposition is under the auspices of the A. S. H. V. E. in conjunction with its 55th Annual Meet-

ing which represents seventeen associations in the allied fields of acoustics, architecture, air filtration, insulation and fuels.

COMMERCIAL STANDARD FOR COPPER NAPHTHENATE

The National Bureau of Standards has announced the establishment of Copper Naphthenate Wood-Preservative (spray, brush, dip application) Commercial Standard CS152-48.

The recommended commercial standard was proposed by manufacturers and approved by other interests and was circulated by the National Bureau of Standards to producers, distributors, testing laboratories, and users for written acceptance.

The propose of the commercial standard is to provide a nationally recognized specification for copper naphthenate wood-preservative for the guidance of buyers, sellers, and testing laboratories; to promote fair competition and consumer confidence in products conforming to the standard; and to provide a basis for labeling and guaranteeing the quality of the product.

PRODUCERS COUNCIL, INC., NORTHERN CALICORNIA

Fred J. Mahr, Industrial Development Engineer with the Pacific Gas & Electric Company, was the principal speaker at the October meeting of the Council in San Francisco.

His subject was "Kilowatt Builders" and the amazing growth, industrial and otherwise, of California unfolded as Mahr outlined his company's extensive program of building steam and hydro-electric plants.

Among the newest projects contemplated is a $50,000,000 steam electric power plant at Antioch, California.

WEST COAST LUMBER PRODUCTION UPPED

Production, orders and shipments of lumber from sawmills of the Douglas fir region of Washington and Oregon for the first seven months of 1948 exceed the same period last year by a considerable margin, according to a recent report of H. V. Simpson, executive vice president of the West Coast Lumbermen's Association.

In 30 weeks of 1948 West Coast mills produced 5,052,620,000 board feet of lumber, topping last year by 184 million feet for the same period. Total order file of 5,095,122,000 board feet so far in 1948, exceeds mill production by 43 million feet. Mills report an unfilled order file totaling 669,964,000 feet. Shipments for the 30 weeks top both orders and production, amount to 5,109,806,000 feet.

A threatened shortage of railroad cars may reduce shipments during the early fall from West

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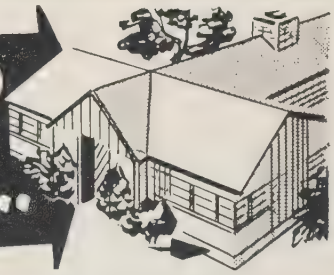

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Coast mills. Home builders and construction industry throughout the nation, which depend on the high grade structural and finish lumber of this section, have not been held up for lack of West Coast lumber, a record which the industry is proud of as its contribution to postwar recovery.

SCHOOL CONTRACTS AWARDED

Among the many contracts recently awarded for the construction of new or additions to school buildings in California are:

Di Giorgio Grammar School (Kern County) $188,000. Fred S. Macomber, Los Angeles, contractor; C. B. Alford & W. J. Thomas, Bakersfield, Architects.

Teague Grammar School (Fresno County) $157,430. Harris Construction Company, Fresno, contractor; Franklin & Simpson, Fresno, Architects.

BERKELEY EXCHANGE. Monson Bros. of San Francisco have started construction of a $1,225,000 addition to the Ashberry Telephone Exchange in Berkeley.

NEW BUILDING MATERIALS

(From Page 21)

benefited from extensive research programs too numerous for mention. One of the recent studies dealt with the design of re-enforcing bars for the most effective bond to the surrounding concrete. Considerable work also has been done to prevent corrosion in steel pipe.

Electrical development in construction has moved forward on a tremendous scale. A "bus duct" system for factory wiring and the raceway system used in structural steel floors for office buildings provide plug-ins wherever and whenever desired. Research has produced silent electric light switches, eliminated the need for fuses, made it feasible to connect wires without soldering.

These are some of the results of research on building products.

MILLS COLLEGE MEMORIAL

(From Page 13)

space. Additional space is being reserved for a future bedroom wing.

Present plans call for immediate erection of offices and service wings at an approximate cost of $29,000. These units are to be completed within the next five months, while the lounge and other units will be added at later dates as funds become available.

Reinhardt House will be built near the College Art Gallery and craft shops, adjacent to the College Shop and Tea Room.

A. I. A. ACTIVITIES

American Institute of Architects

Arizona Chapter:
James Macmillan, President; Arthur T. Brown, Secretary, 740 N. Country Club Road, Tucson, Arizona.
Central Valley of California:
Frank V. Mayo, President; John W. Bomberger, Vice-president; Ivan C. Satterlee, Treasurer; William Koblik, Secretary, 2203 13th St., Sacramento, California.
Central Coast Counties Chapter:
Birge M. Clark, President; Lisle Fred Richards, Secretary-Treasurer; Thomas E. Elston, Jr., Chester Root and Henry Morgan Stedman, Directors. Office, 411 Lafayette Street, San Jose.
Colorado Chapter:
Raymond H. Ervin, President; James M. Hunter, Secretary, 2049 Broadway, Boulder, Colorado.
East Bay Chapter:
A. Lewis Koue, President; James H. Anderson, Vice-President; Loy Chamberlain, Secretary; Chester H. Treichel, Treasurer. Office, 3833 Piedmont Ave., Berkeley, California.
Montana Chapter:
Ralph H. Cushing, President; H. C. Cheever, Secretary, Montana State College, Bozeman, Montana.
Northern California Chapter:
Wm. Clement Ambrose, President; Lester W. Hurd, Vice-President; Ralph N. Pollack, Secretary; Donald Beach Kirby, Treasurer: Office 369 Pine Street, San Francisco.
Oregon Chapter:
Frank Roehr, President; Sidney W. Little, Vice-President; J. Holman Baines, Secretary; Don Edmundson, Treasurer. Office 619 Builders Exchange Bldg., Portland 4, Oregon.
Pasadena Chapter (California)
Breo. Freeman, President; Melville Garton, Vice-President; Roland E. Coate, Treasurer; Burton Romberger, Secretary; and Robert Ainsworth, Harold J. Bissner and Roy A. Kazebier, Directors. Offices, 1041 E. Green St., Pasadena 1.
San Diego Chapter:
H. Louis Bodmer, President; Louis J. Gill, Secretary, 203 Granger Building, San Diego, California.
Santa Barbara Chapter (California):
Winsor Soule, President; Ralph Armitage, Vice-President; Robert Ingle Hoyt, Secretary; Lutah M. Riggs, Treasurer; Office 116 E. Sola St., Santa Barbara, California.
CALIFORNIA COUNCIL OF ARCHITECTS
Andrew T. Hass, President; Adrian Wilson, Vice-President; Malcolm Reynolds, Secretary-Treasurer: Office 369 Pine Street, San Francisco.
Southern California Chapter:
George Allison, President; A. C. Martin, Jr., Vice-President; Anthony Thermin, Secretary; George E. Gable, Treasurer; Chapter Headquarters, 3757 Wilshire Blvd., Los Angeles 5, California.
Spokane Chapter (Washington):
Noel E. Thomson, President; Kenneth D. Storment, Secretary, Hutton Building, Spokane, Washington.
Utah Chapter:
George Cannon Young, President; Theodore R. Pope, Secretary, 29 South State Street, Salt Lake City 1, Utah.
Washington State Chapter:
Waldo B. Christenson, President; Perry B. Johanson, 1st Vice-President; John G. Richards, 2nd Vice-President; Hugo W. Osterman, Treasurer; and Bliss Moore, Jr., Secretary. Offices 714 American Building, Seattle 4, Washington.
Tacoma Society:
Chas. Rueger, President; Clarence Rueger, Vice-President; W. W. Durham, Secretary-Treasurer.
Hawaii Chapter::
Kenneth W. Roehrig, President; James Morrison, Secretary, 334 Federal Bldg., Honolulu, T. H.

SOUTHERN CALIFORNIA CHAPTER

Details of Holland's architectural trends were outlined in a talk by H. Wijdeveld before members at the November meeting.

Wijdeveld, visiting Professor of Architecture, University of Southern California, as a well-known Architect from Holland who has practiced in and near Amsterdam for many years and because of a wide variety of activities in the architectural field was able to discuss many interesting phases of the profession.

An open forum was also held on the "Proposed Revisions to the Architects' Act" with A. C. Martin, Jr., Chairman of the Legislative Committee of the California Council of Architects serving as chairman.

* * *

The Exhibit Committee under the direction of Jack C. Lipman, Chairman, has been very active in promoting public displays of architecture.

* * *

NEW MEMBERS. The following are new members of the Chapter: INSTITUTE MEMBERS: Alfred V. Chaix, Richard L. Cook, Victor D. Gruen, David E. Herrald, Thomas J. Russell, Aaron Wabash, Raymond Whalley, and Rudolph Wilson. JUNIOR ASSOCIATES, James F. Geary, Pierre P. Claeyssens, Richard A. Jampol, Elmo K. Lathrop, Joseph H. Johnson, John M. Scheideman, and Oliver L. Stockton.

* * *

Adrian Wilson, past president of the Chapter, is serving as a member of the Board of Appeals of the Los Angeles County Building Department.

* * *

Jan Reiner, on leave from the U. S. C. School of Architecture faculty, is spending several months Czecho-Slovakia.

* * *

Victor Gruen has just returned from Vienna, his home prior to 1938.

(See Page 43)

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WITH THE ENGINEERS

Structural Engineers Association of Northern California

John A. Blume, President; Jesse Rosenwald, Vice President; Franklin P. Ulrich, Treas.; Geo. E. Solnar, Jr., Sec., Office, Room 215, 55 New Montgomery St., San Francisco 5, Phone SUtter 1-7642. DIRECTORS, A. W. Anderson, Henry J. Degenkolb, John E. Rinne, Robert D. Dewell, and Wm. W. Moore.

San Francisco Section

L. A. Elsener, President; A. W. Earl and G. B. Woodruff, Vice-Presidents; John E. Rinne, Secretary-Treasurer; 225 Bush Street, San Francisco 20.

Structural Engineers Association of Southern California

Steve Barnes, President; Harry W. Bolin, Vice President; Lewis K. Osborn, Sec-Treas. DIRECTORS, Richard W. Ware, Geo. E. Brandow, L. T. Evans, Harold P. King, and Donald F. Shugart. Office: 202 Architects Bldg., Los Angeles 13, Calif.

Puget Sound Engineering Council (Washington)

R. E. Kister, A. I. E. E., Chairman; E. R. McMillan, A. S. C. E., Vice Chairman; L. B. Cooper, A. S. M. E., Secretary; A. E. Nicherson, I. E. S., Treasurer; Offices, L. B. Cooper, c/o University of Washington, Seattle 5, Washington.

STRUCTURAL ENGINEERS NAME STATE COMMITTEE

A state public relations committee of the Structural Engineers Association of California has been named with Henry Powers, Northern California Chapter, serving as chairman; and comprising George Brandow representing the Southern California Chapter, and George E. Goodall representing the Central California Chapter.

STRUCTURAL ENGINEERS ASSOCIATION OF SOUTHERN CALIFORNIA

Officers for 1949, as reported by the Nominating Committee, were presented to the regular November meeting on the 3rd, and included Harry W. Bolin for President; Ernest C. Hillman, Jr., Vice-president; Robert J. Short, Secretary-treasurer; and John G. Case and Lewis K. Osborn, Board of Directors.

Kemper Nömland, A.I.A., reported his impressions of the recent Structural Engineers Association annual convention at Santa Barbara, as viewed by the architect, and John Minasian outlined some of the technical papers which were reported at the convention.

An interesting motion picture was presented in technicolor on the subject of "Rail Steel and the World of Today," narrated by Lowell Thomas, and presented by member James E. Pollak.

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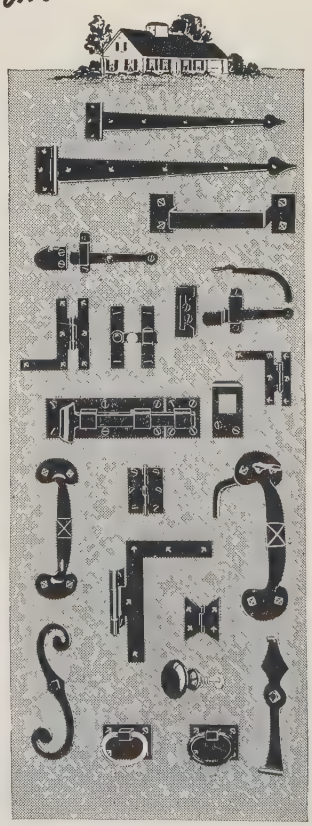

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STRUCTURAL ENGINEERS ASSOCIATION OF NORTHERN CALIFORNIA

The November meeting was devoted to consideration of Association Teamwork and the Advancement of California with staff members of the California State Chamber of Commerce taking part in the discussions, including Clark Galloway, Manager of the Central Coast District; Robert Shillito, Director of the Transportation and Highway Department; James Gofourth, Director of the Industrial Department, and Herbert Ormsby, Director of Research.

* * *

Edwin McInnis, addressed the members at their October meeting on the subject "The Economic Trend in California," predicting continued prosperity.

* * *

The Industrial Section of the California State Chamber of Commerce has passed a resolution recommending the State Chamber support the building industry in its stand that engineers and architects in private practice be allowed to participate in state building programs.

* * *

The CANONS of ETHICS, prepared by the Engineering Council for Professional Development have been recommended to the Board of Directors

for approval by the Professional Welfare Committee, G. A. Sedgwick, chairman.

CALIFORNIA ENGINEER ELECTED PRESIDENT OF CIVIL ENGINEERS

Franklin Thomas, Professor of Civil Engineering and Dean of Students at California Institute of Technology, Pasadena, was nominated without opposition as the 1949 President of the American Society of Civil Engineers by the organization's Board of Directors at the Society's annual Fall meeting which was held recently in Boston, Mass.

Dean Franklin Thomas

Confirmation of the nomination is scheduled late this year by letter ballot of the more than 24,000 members and Dean Thomas is expected to take office at the Society's Annual Meeting in New York City in January.

Long active in civic affairs, Dean Thomas has been a member of the Board of Directors of the Metropolitan Water District of Los Angeles since its organization in 1928, and is Chairman of the Colorado River Board of California, to which he was appointed as a member by Governor Earl Warren last year. He was a national Director of the American Society of Civil Engineers from 1930 to 1933 and a Vice-President in 1944-45.

Dean Thomas was born in Red Oak, Iowa, 1885, graduated from the University of Iowa in 1908 with a B. E. degree, and spent the following year at McGill University doing graduate work. He became associated with the California Institute of Technology in 1913 as associate professor of civil engineering, and with the exception of 1918 when he served as a first lieutenant in the Engineer Corps Reserve, has been identified with the Institute becoming Dean of Students in 1944.

AMERICAN SOCIETY FOR METALS

Puget Sound Chapter

Fatigue failures in tail shafts of large ships is a problem constantly facing the consulting metallurgist in the marine field according to Mr. L. T. Holt, President of the L. T. Holt Company, Seattle. Mr. Holt is one of the Pacific Northwest's pioneer consulting physical metallurgists and spoke before the Puget Sound Chapter of The American Society for Metals at the October meeting on the subject "Investigation into the Failure of Machine and Engine Parts."

The subject was covered by a series of slides

(See Page 39)

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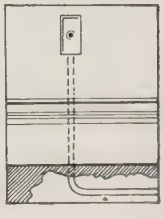
Built-in telephone facilities are the mark of a thoughtful, modern builder. For telephone conduit and outlets, installed while the house is under construction, add much to the future value and convenience of the home. Just a few pieces of tubing leading to well-located outlets... that's all it takes. The cost is small. And telephones can be added or moved later on without drilling holes or running wire along baseboards.



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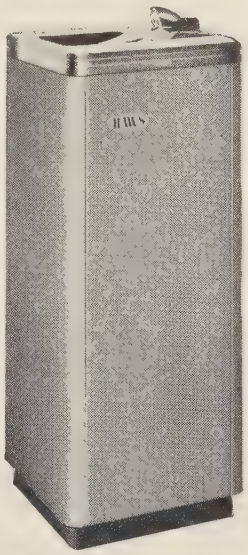

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PLANNING AND RE-DEVELOPMENT LARGER COMMUNITY

(From Page 14)

the keynote of the discussion on "Planning and Redevelopment of the Larger Community," considered at the recent Businessmen's Conference on Urban Problems held in Detroit. We did not talk about the general theory of city planning or even subdivisions of that theory. There were selected several well-defined and widely-recognized phases of urban problems, currently important and susceptible of effective treatment. Each of these subjects were briefly outlined as a prelude to round table discussions among the group. Experience in Detroit was used to illustrate the points made.

Of all the separable and distinct sections of a city I think all will agree that the central business district is most important. Here is the greatest concentration of assessed values. It is the number one point of origin and destination for mass transit riders and private vehicle users. More business is transacted here than in almost all local shopping centers combined. And finally, by its appearance, convenience and general effect a city is more often rated by the visitor than by any other single area of that community. How the central business district of a city can be improved is therefore of vital concern to every citizen of every community, and especially to the businessmen of the nation. We will give an analysis of Detroit's downtown area and the specific remedies prescribed to make it more attractive to the shopper and more secure for its office building and store owners.

Slum Clearance

Slums and blighted areas have received more general attention in recent years than any other aspect of our cities' conditions. Figures have been bandied about to show that from 10 to 30% of our larger cities' areas are in a state of physical and economic decay, necessitating quick and drastic action. Whatever the true percentage of slum areas may be, and it varies in each community, there seems to be general agreement that something ought to be done about it, and also that not enough is being done. We propose to present the highlights of what American cities are doing to clear slums as a prelude to discussion on what more should be done, and how an expansion and quickening of this program should be carried out within the enterprise system.

Outlying Commercial Development

Local shopping centers throughout the city in the aggregate approach the central business district in importance to residents and to community welfare. Successful subdividers and developers have worked out, from theory and from trial and

error, tested and proven principles for distribution, location and design of neighborhood business areas. To what extent is this hard-won experience being exploited in new developments throughout our communities? Surely a review of this subject is timely and informative to those concerned with civic progress.

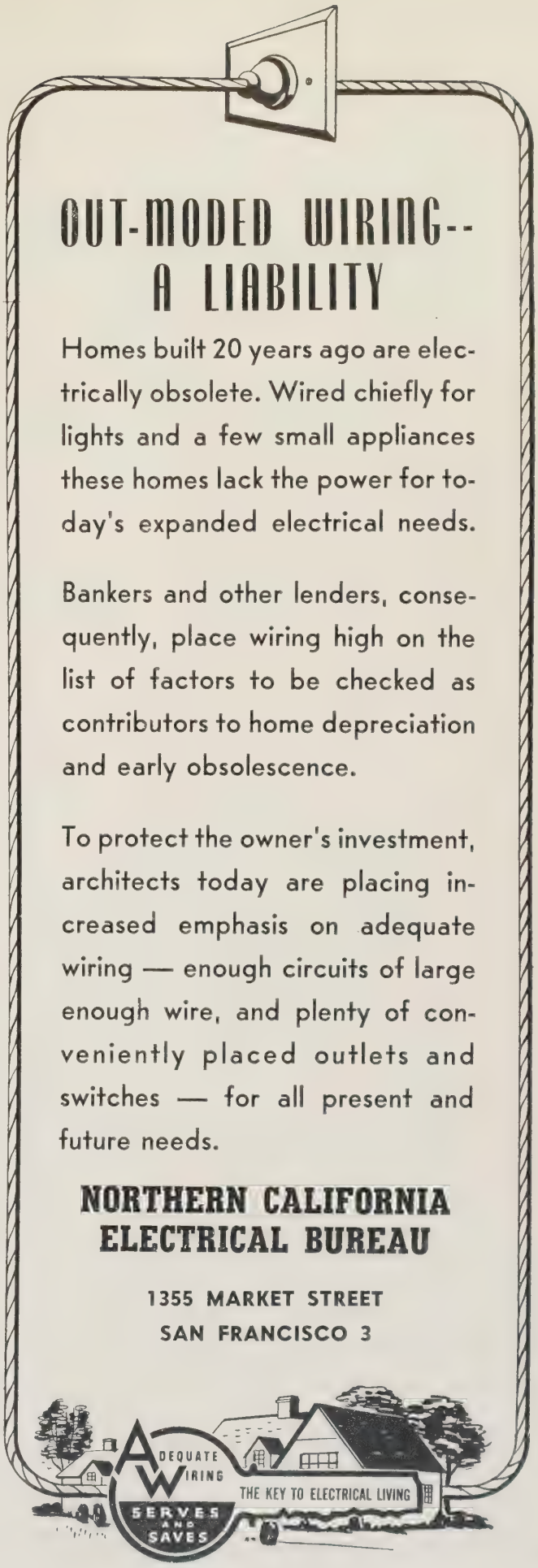
Recent years have brought increasing use of the term "neighborhood" in city planning. Since Clarence Perry first formalized the term in 1929 the neighborhood concept seems to have gained acceptance, so that today every new city plan is built around and upon it. Thus, it seems pertinent in a conference of this kind to closely examine this principle and see for ourselves whether it is merely a theoretical term or a workable tool for city development and redevelopment. Does the neighborhood have a practical basis, and is it founded on a realistic appraisal of residential areas in either their present or future form? Is it applicable to any one or all of the three general classes of residential sections of a large community; namely, the developing, the deteriorating and the redevelopment areas? A better understanding and agreement on the significance of the neighborhood approach will be extremely useful in our search for solutions to urban problems.

Urban Redevelopment

Slum clearance and rebuilding for housing have been practically synonymous for many years. Lately, however, we talk of redevelopment of slum areas. This is a broader approach which enables us to see more clearly both our objectives and the procedures to attain them.

In many cities the badly blighted and slum areas subject to clearance and rebuilding are now largely residential in character, although frequently with an admixture of run-down industry and business. The best future land use for some of these areas may not be residential at all, but rather for industry. Rebuilding of such sections with dwellings might doom these residences to ultimate and inevitable blight again. Thus, it has appeared that redevelopment in these cases for industry or commerce might in the long run be more realistic and productive for the community. Relief of industrial site shortage, increased employment opportunities and enhanced tax base could easily follow a program of this kind. Since subsidy of some kind and from some source now seems unavoidable if timely redevelopment is to be attained, may not subsidy for industrial redevelopment prove more productive and less costly for the community? Competent testimony by an expert on industrial needs applied to this type of redevelopment will open up new approaches to the problems of urban slums and blight.

(See Page 44)


OUT-MODED WIRING--
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Homes built 20 years ago are electrically obsolete. Wired chiefly for lights and a few small appliances these homes lack the power for today's expanded electrical needs.
Bankers and other lenders, consequently, place wiring high on the list of factors to be checked as contributors to home depreciation and early obsolescence.
To protect the owner's investment, architects today are placing increased emphasis on adequate wiring — enough circuits of large enough wire, and plenty of conveniently placed outlets and switches — for all present and future needs.
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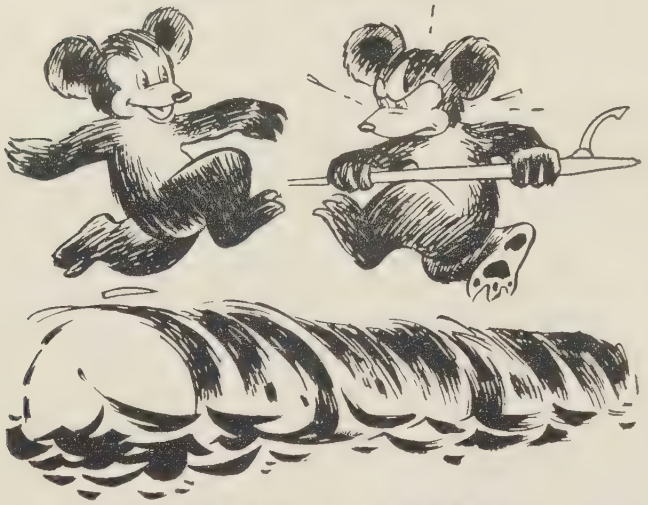

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HEADLINE NEWS AND VIEWS

By E. H. W.

Development of a new, low-cost board that repels rats has been announced by the U. S. Plywood Corp'n.—John L. Lewis should be interested.

* * *

American cities are not planned for the "art of living" but for the "art of making money."—Clip Sheet, U. C.

* * *

We must remember that the biggest room in the world is the room for improvement.—Karl Bock, Pres. American Institute of Decorators.

* * *

Entries to the Merit Award Competition, Third Internatoinal Lighting Exposition, will close on January 15, 1949.

* * *

"One-quarter of every dollar of industry's payroll is spent for handling. Yet handling adds nothing to a product except cost."—S. W. Gibb, President, Material Handling Institute.

* * *

"Continuation of the business boom into 1949 depends more on construction than any other factor." Business Week.

* * *

New and expanded industrial ventures in the San Francisco Bay Area and Northern California during July, 1948, accounted for 56 projects with an estimated expenditure of $21,884,700.—Industrial Dept., San Francisco Chamber of Commerce.

* * *

"Business managements in responsible positions in almost four million separate businesses, by their day-to-day decisions, help to determine the level of economic activity."—Business Action.

* * *

It is estimated that the backlog of orders for new automobiles in this country is more than 7,300,000. This represents a tremendous amount of money awaiting spending by the public.

* * *

"In sharp contrast to two years ago, the attitude of the Europeon countries is now largely one of optimism instead of despair."—Paul G. Hoffman, ECA.

* * *

The Los Angeles City Housing Authority is the largest landlord in Los Angeles operating a total of 13,589 units housing approximately 55,000 persons.

* * *

Recent tests on the Pacific Electric circuit breaker are believed to be the largest short circuit interruptions ever made.

IN THE NEWS

ARCHITECT SELECTED

Birge M. Clark & Walter Stromquist, Palo Alto architects, have been selected for the proposed addition to the Santa Clara County Tubercular Hospital at San Jose.

BONDS VOTED

Bonds have been approved for the construction of a new junior college at Redding (California) in the amount of $1,180,500, plus $500,000 for an addition to the high school.

SCHOOL CONTRACT

A general contract has been awarded to Pacific Coast Builders of San Francisco, for the construction of a new Elementary School building at Pittsburg (California) to cost $569,500. Chas. F. Dean, Sacramento, is the Architect.

REPAIR "GJOA"

San Francisco's Park Commission has decided to repair the famous ship "Gjoa" used by Capt. Amundsen during expeditions to the North Pole. The ship is on exhibition in Golden Gate Park.

YOUTH CENTER

The Piedmont (California) Community Church has awarded a contract to the California Builders Company of Oakland, for the construction of a $120,413 addition to the Church's Education and Youth Center.

BONDS LOSE

A $1,000,000 Bond Issue for construction of High School buildings in Chico and Paradise (California) were recently defeated by the voters of the school district.

Likewise a $1,250,000 Bond Issue for construction of High School buildings in Merced, Atwater, and Livingston was also rejected by the voters of the Merced Union High School District.

HOSPITAL ADDITION

The Mills Memorial Hospital at San Mateo (California) has awarded a $366,000 contract to the Louis C. Dunn Company of San Francisco for the construction of an addition to the hospital building. Skidmore, Owings & Merrill of San Francisco are the architects.

At Helms Bakeries' New Plant

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CONTRIBUTES TO A BETTER PRODUCT

Seventeen years of experience qualifies Helms Bakeries to say what makes good bread . . . and efficient bakeries. Day and night shifts over a period of nearly two decades have proven to this outstanding company, the importance of more efficiently, more comfortably lighted interiors to a better product.

The installation of Certified Smoot-Holman industrial fluorescent lighting equipment in Helms' new plant in Montebello, California, is Helms' answer to this need. Smoot-Holman industrial lighting fixtures are a positive guarantee of maximum performance with minimum maintenance cost.

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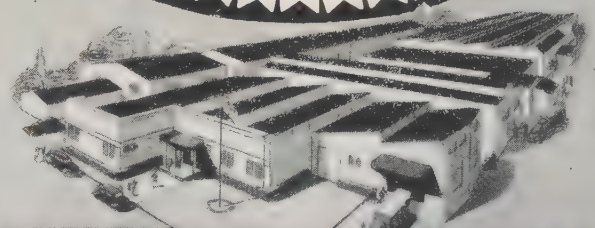

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LANDSCAPE ARCHITECTURE

Notes of The Profession

ASSOCIATION OF LANDSCAPE ARCHITECTS, SAN FRANCISCO REGION
Emil L. Anderson, President; Vernon M. Dean, Vice-President; Ralph W. Jones, Secretary; Paul M. Steinmetz, Recording Secretary; Prentiss French, Treasurer. Directors at Large: Geraldine Knight Scott, Wayne Gray, H. L. Vaughan and Douglas H. Baylis.

SAN FRANCISCO'S NEWEST COMMUNITY PROJECT

A general contract has been awarded to the MacDonald, Young & Nelson Construction Company of San Francisco by Stoneson Brothers for the construction of a new community center in the area north of Parkmerced in San Francisco.

The new construction will consist of four ten-story reinforced concrete apartment buildings containing automatic elevators; ten three-story apartment buildings which will contain 683 four, five and six room apartments, of frame and stucco; a large reinforced concrete shopping center, and a theater building.

Known as the "Stonestown" Community Project, it is estimated it will cost in excess of $30,000,000 to complete.

The architect is Angus McSweeney of San Francisco.

GENERAL CONTRACT AWARDED. The Dinwiddie Construction Company, San Francisco, has been awarded a $600,000 contract for the construction of a new store building in San Mateo (California) for the Parrott Investment Company. W. P. Day & Harry Michelson of San Francisco are the Architects.

NEW STEAM ELECTRIC PLANT. The Pacific Gas & Electric Company have announced preliminary plans for the construction of a $50,000,000 steam electric power plant near Antioch, California. Bechtel Corporation is the Contractor.

APPOINTED TRAFFIC MANAGER OF W. P. FULLER & COMPANY

The appointment of E. P. Camous to the position of Traffic Manager of the W. P. Fuller & Company, West Coast paint manufacturers, has been announced by A. H. Brawner, President.

E. P. CAMOUS

Camous, a graduate of the University of San Francisco in 1939 with the degree of B.S. in Economics, succeeds former Traffic manager N. B. Wagner, who retired after completing 50 years of service with the paint, glass, and wallpaper firm.

During the late War Camous served as Administrative Assistant to the Officer in Charge of the Commercial Communications Section, Signal Office, Ninth Service Command.

Camous is promoted to his new position from the Traffic Department where he has been serving as Assistant Traffic Manager under Wagner.

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WITH THE ENGINEERS

(From Page 33)

showing actual failures investigated by the L. T. Holt Company. In most premature fatigue failures of tail shafts the neculi could be traced to the rough machined surface of the shafting. Keyways were also shown to be the point of origination of many fatigue cracks. The steel itself was seldom found to be the source of the trouble. Fabrication defects or design was usually responsible for service failures. He showed one example where very dirty steel was responsible. Mr. Holt's studies into failures of machine and engine parts were very instructive and interesting.

Two motion pictures on the manufacture of steel were presented. One presented by Alleghany Ludlum showed the melting and casting of stainless steel and the other, melting and fabrication of steel for ship shafting by Isaacson Iron Works, of Seattle, Washington. The pictures brought to conclusion a very worthwhile evening.

ENGINEERING DEAN RETURNS TO COLLEGE

Prof. Morrough P. O'Brien, Dean of the College of Engineering, University of California, has returned to the Berkeley campus after a year's leave of absence spent in private industry.

While on leave, Dean O'Brien served as director of research and engineering for the Air Reduction Company. The research and engineering activities under his direction included chemical and physical research and chemical and mechanical engineering. His work also included the direction of a reorganization of the technical phases of the company's activities and formulation of technical plans and policies for the company.

Construction work valued at 15 million dollars was completed during the year he was associated with the company.

PACIFIC COAST BUILDING OFFICIALS CONFERENCE

The Pacific Coast Building Officials Conference at its recent annual meeting in Sacramento, adopted more than 150 specific changes to the Uniform Code, several of which are of particular interest to Structural Engineers.

Of more than passing interest are the following: New occupancy table allowing reduced fire-resistance in exterior walls under certain conditions and occupancies; new roof loading requirements; an increase in basic stresses for lumber but not for fastenings; revised concrete chapter to conform with the latest A.C.I. recommendations; increased allowable bolt stresses in Masonry.

Approved changes in the Steel Chapter to con-

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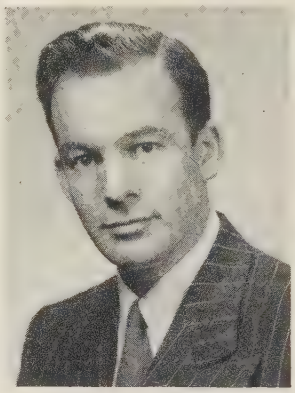
form to latest A.I.S.C. specifications; complete revision of the Chapter on foundations and piles; and a new earthquake probability map of the United States was approved for inclusion in the index.

It is expected the 1949 edition of the Uniform Code, including all approved changes, will be available early in the year.

NEW DISTRICT SALES MANAGER

George L. Cobb has been appointed to the post of district sales manager for the Soule' Steel Company, according to a recent announcement by Edw. L. Soule', president.



George L. Cobb

He will have charge of the company's sales program throughout northern California and Nevada, with headquarters in the general offices in San Francisco.

Cobb is a graduate of the School of Engineering, Stanford University, is active in civic affairs, and has been with Soule' for the past fourteen years holding the positions of sales engineer and advertising manager prior to his present appointment.

The Soule' organization also maintain facilities in Los Angeles, Portland, and Seattle for fabricating steel building products and for marketing its new pre-fabricated all metal buildings.

CONTRACTOR APPOINTED TO ADVISORY COUNCIL

Walter L. Couse, general contractor of Detroit, Michigan, has been appointed to the Advisory Council of the United States Senate Interstate Commerce Subcommittee on Trade Policies.

The subcommittee is investigating the effect on the national economy of Supreme Court and Federal Trade Commission decisions challenging the legality of basing point and other delivered price systems where the seller absorbs freight costs to meet the lower prices of competitors located closer to the customer.

General contractors are customers for a large number of construction materials that have ordinarily been sold on a delivered price basis. Couse will bring to the council the problems of the contract construction industry relating to pricing policies.

ESTIMATOR'S GUIDE

BUILDING AND CONSTRUCTION MATERIALS

PRICES GIVEN ARE FIGURING PRICES AND ARE MADE UP FROM AVERAGE QUOTATIONS FURNISHED BY MATERIAL HOUSES TO SAN FRANCISCO CONTRACTORS. 2½% SALES TAX ON ALL MATERIALS BUT NOT LABOR

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

BONDS—Performance or Performance plus Labor and Material Bond(s), $10 per $1000 on contract price. Labor & Material Bond(s) only, $5.00 per $1000 on contract price.

BRICKWORK—

Common Brick—Per 1M laid—$100.00 up (according to class of work).
Face Brick—Per 1M laid—$200.00 and up (according to class of work).
Brick Steps—$3.00 and up.
Common Brick Veneer on Frame Bldgs.—Approx. $1.20 and up—according to class of work).
Face Brick Veneer on Frame Bldgs.—Approx. $2.00 and up (according to class of work).
Common Brick—$28.50 per M—truckload lots, delivered.
Face Brick—$60.00 to $90.00 per M, truckload lots, delivered.
Cartage—Approx. $9.00 per M.
Los Angeles County Area—Residential, up to 4-family or apt., metal raceways, $6.50 per outlet.

BUILDING PAPER—

1 ply per 1000 ft. roll	$5.30
2 ply per 1000 ft. roll	7.80
3 ply per 1000 ft. roll	9.70
Brownskin, Standard, 500 ft. roll	8.00
Sisalkraft, reinforced, 500 ft. roll	7.00

BUILDING HARDWARE—

Sash cord com. No. 7	$2.65 per 100 ft.
Sash cord com. No. 8	3.00 per 100 ft.
Sash cord spot No. 7	3.65 per 100 ft.
Sash cord spot No. 8	4.00 per 100 ft.

Sash weights, cast iron, $100.00 ton.

Nails, $5.50 base.

CONCRETE AGGREGATES—

The following prices net to Contractors unless otherwise shown. Carload lots only.

	Bunker per ton	Del'd per ton
Gravel, all sizes	$2.44	$2.75
Top Sand	2.38	3.13
Concrete Mix	2.38	3.06
Crushed Rock, ¼" to ¾"	2.38	2.94
Crushed Rock, ¾" to 1½"	$2.38	$3.13
Roofing Gravel	2.81	3.50
River Sand	2.50	3.06
Sand—		
Lapis (Nos. 2 & 4)	3.56	3.94
Olympia (Nos. 1 & 2)	3.56	3.88

Cement—

Common (all brands, paper sacks), carload lots, $3.02 per bbl. f.o.b. car; delivered $3.60.
Cash discount on carload lots, 10c a bbl., 10th Prox., less than carload lots $4.00 per bbl. f.o.b. warehouse or delivered.
Cash discount 2% on L.C.L.

Trinity White, Medusa White — 1 to 100 sacks, $3.13 sack warehouse or del.; $9.56 bbl. carload lots.

DAMPPROOFING and Waterproofing—

Two-coat work, $8.00 per square.
Membrane waterproofing—4 layers of saturated felt, $9.00 per square.
Hot coating work, $5.00 per square.
Medusa Waterproofing, $3.50 per lb. San Francisco Warehouse.
Tricosal concrete waterproofing. 50c a cubic yd. and up.

ELECTRIC WIRING—$15 to $20 per outlet for conduit work (including switches).

Knob and tube average $6.00 per outlet. (Available only for priority work.)

ELEVATORS—

Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing a slow speed automatic passenger elevator in small four story apartment building, including entrance doors, about $8000.00.

EXCAVATION—

Sand, $1.00; clay or shale, $1.50 per yard.
Trucks, $30 to $45 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

FIRE ESCAPES—

Ten-foot galvanized iron balcony, with stairs, $250 installed on new buildings; $300 on old buildings.

FLOORS—

Composition Floors, such as Magnesite, 50c per square foot.
Linoflor—2 gages—$3.00 per sq. yd.
Mastipave—$1.50 per sq. yd.
Battleship Linoleum—available to Army and Navy only—⅛"—$3.50 sq. yd. 3/16"—$3.50 sq. yd.
Terazzo Floors—$1.50 per sq. ft.
Terazzo Steps—$2.50 per lin. ft.
Mastic Wear Coat—according to type—20c to 35c.

Hardwood Flooring—

Standard Mill grades not available.

Victory Oak— T & G

25/32 x 2¼"	$252.00 per M. plus Cartage
½ x 2"	$210.00
½" x 1½"	200.00

Prefinished Standard & Better Oak Flooring

25/32 x 3¼"	$265.00 per M. plus Cartage
½ x 2½"	237.00 per M. plus Cartage

Maple Flooring

25/32" T & G Clear	$330.00 per M. plus Ctg.
2nd	305.00 per M. plus Ctg.
3rd	255.00 per M. plus Ctg.

Floor Layers' Wage, $2.28½ per hr. (Legal as of July 1, 1947. Given us by Inlaid Floor Co.)

GLASS—

Single Strength Window Glass	$ .40 per □ ft.
Double Strength Window Glass	.60 per □ ft.
Plate Glass, under 75 sq. ft.	1.50 per □ ft.
Polished Wire Plate Glass	2.25 per □ ft.
Rgh. Wire Glass	.60 per □ ft.
Obscure Glass	.40 per □ ft.

Glazing of above is additional.
Glass Blocks—$2.75 per □ ft. set in place

HEATING—

Average, $2.50 to $3.00 per sq. ft. of radiation, according to conditions.
Warm air (gravity) average $64 per register.
Forced air average $91 per register.

INSULATION AND WALLBOARD—

Rockwool Insulation—(2") ..... $65.00 per M sq. ft.
Cotton Insulation—Full-thickness (3⅝") ..... $95.50 per M sq. ft.
Sisalation Aluminum Insulation—Foil-mounted on both sides ..... $23.50 per M sq. ft.
Tileboard—4'x6' panel ..... $9.00 per panel
Wallboard—½" thickness ..... $55.00 per M sq. ft.
Finished Plank ..... $69.00 per M sq. ft.
Ceiling Tileboard ..... $69.00 per M sq. ft.

IRON—Cost of ornamental iron, cast iron, etc., depends on designs.

LUMBER—

	Per M Delvd.
No. 1 Common	$90.00
No. 2 Common	88.00
Select O. P. Common	94.00

Flooring—

V.G.-D.F. B & Btr. 1 x 4 T & G Flooring	$170.00
"C" and better—all	170.00
"D" and better—all	170.00
Rwd. Rustic—"A" grade, medium dry, 8 to 24 ft.	150.00
"B" grade, medium dry	150.00

Plywood ..... 15c to 18c per ft.
Plyscord ..... 9½c per ft.
Plywall ..... 9c per ft.
Plyform ..... 15c per ft.

Shingles (Rwd. not available)—
Red Cedar No. 1—$13.00 per square; No. 2, $10.50; No. 3, $9.00.
Average cost to lay shingles, $6.00 per square.
Cedar Shakes—Tapered: ½" to ¾" x 25"—$17.00 per square.
Resawn: ¾" to 1¼" x 25"—$22.00 per square
Average cost to lay shakes,— 8.00 per square

MILLWORK—Standard.

D. F. $150 per 1000. R. W. Rustic $175 per 1000 (delivered).
Double hung box window frames, average with trim, $12.50 and up, each.
Complete door unit, $15 to $25.
Screen doors, $6.00 to $8.00 each.
Patent screen windows, $1.25 a sq. ft.
Cases for kitchen pantries seven ft. high, per lineal ft., $12.00 each.
Dining room cases, $15.00 per lineal foot. Rough and finish about $1.00 per sq. ft.
Labor—Rough carpentry, warehouse heavy framing (average), $65.00 per M.
For smaller work average, $75.00 to $85.00 per 1000.

MARBLE—(See Dealers)

PAINTING—

Two-coat work ..... per yard 75c
Three-coat work ..... per yard $1.00
Cold water painting ..... per yard 25c
Whitewashing ..... per yard 15c
Turpentine ..... $1.85 per gal. in 5-gal. cont.
Raw Linseed Oil ..... $3.33 per gal. in 5-gal. cont.
Boiled Linseed Oil ..... $3.23 per gal. in drums.
Boiled Linseed Oil—$3.33 per gal. in 5-gal. containers.
Replacement Oil—$2.75 per gal. in drums. $2.75 per gal. in 5-gal. containers.
Use Replacement Oil ..... $3.00 per gal. in 1 gal. cont.
A deposit of $7.50 required on all drums.

PATENT CHIMNEYS—

6-inch ..... $2.00 lineal foot
8-inch ..... 2.50 lineal foot
10-inch ..... 3.50 lineal foot
12-inch ..... 4.50 lineal foot

PLASTER—

Neat wall, per ton delivered in S. F. in paper bags, $17.60.

PLASTERING (Interior)—

	Yard
3 Coats, metal lath and plaster	$3.00
Keene cement on metal lath	3.50
Ceilings with ¾ hot roll channels metal lath (lathed only)	3.00
Seilings with ¾ hot roll channels metal lath plastered	4.50
Single partition ¾ channel lath 1 side (lath only	3.00
Single partition ¾ channel lath 2 inches thick plastered	8.00
4-inch double partition ¾ channel lath 2 sides (lath only)	5.75
4-inch double partition ¾ channel lath 2 sides plastered	8.75
Thermax single partition; 1" channels; 2¼" overall partition width. Plastered both sides	7.50
Thermax double partition; 1" channels; 4¾" overall partition width. Plastered both sides	11.00
3 Coats over 1" Thermax nailed to one side wood studs or joists	4.50
3 Coats over 1" Thermax suspended to one side wood studs with spring sound isolation clip	5.00

Note—Channel lath controlled by limitation orders.

PLASTERING (Exterior)—

	Yard
2 coats cement finish, brick or concrete wall	$2.50
3 coats cement finish, No. 18 gauge wire mesh	3.50

Lime—$4.00 per bbl. at yard.
Processed LLiLme—$4.15 per bbl. at yard.
Rock or Grip Lath—⅜"—30c per sq. yd.
⅛"—29c per sq. yd.

Composition Stucco—$4.00 sq. yard (applied).

PLUMBING—

From $150.00 per fixture up, according to grade, quality and runs.

ROOFING—

"Standard" tar and gravel, 4 ply—$11.00 per sq. for 30 sqs. or over.
Less than 30 sqs. $14.00 per sq.
Tile $40.00 to $50.00 per square.
Redwood Shingles, $15.00 per square in place.
5/2 #1-16" Cedar Shingles, 4½" Exposure ..... $18.25 square
5/8 x 16"—#1 Cedar Shingles, 5" Exposure ..... $17.00 square
4/2 #1-24" Royal Shingles, 7½" Exposure ..... $23.00 square
Re-coat with Gravel $5.50 per sq.
Asbestos Shingles $25 to $40 per sq. laid.
½ to ¾ x 25" Resawn Cedar Shakes, 10" Exposure $24.00
¾ to 1¼ x 25" Resawn Cedar Shakes, 10" Exposure $29.00
1 x 25" Resawn Cedar Shakes, 10" Exposure 22.00

Above prices are for shakes in place.

SHEET METAL—

Windows—Metal, $2.50 a sq. ft.
Fire doors (average), including hardware $2.80 per sq. ft., size 12'x12'. $3.75 per sq. ft., size 3'x6'.

SKYLIGHTS—(not glazed)

Copper, $1.25 sq. ft. (flat).
Galvanized iron, 65c sq. ft. (flat).
Vented hip skylights 90c sq. ft.

STEEL—STRUCTURAL—

$220 per ton erected, when out of mill.
$270 per ton erected, when out of stock.

STEEL REINFORCING—

$200.00 per ton, in place.

STORE FRONTS (None available).

TILE—

Ceramic Tile Floors—$1.70 per sq. ft.
Cove Base—$1.35 per lin. ft.
Glazed Tile Wainscot—$1.85 per sq. ft.
Asphalt Tile Floor ⅛" x ⅛"—$ .40 per sq. ft. Light shades slightly higher.
Cork Tile—$1.00 per sq. ft.
Mosaic Floors—See dealers.
Lino-Tile—$1.00 per sq. ft.

Wall Tile—

Glazed Terra Cotta Wall Units (single faced) laid in place—approximate prices:

2 x 6 x 12	$1.25 sq. ft.
4 x 6 x 12	1.50 sq. ft.
2 x 8 x 16	1.45 sq. ft.
4 x 8 x 16	1.75 sq. ft.

VENETIAN BLINDS—

75c per square foot and up. Installation extra.

WINDOWS—STEEL—

60c per square foot, $5 for ventilators.

A.I.A. ACTIVITIES

From Page 31)

NORTHERN CALIFORNIA CHAPTER

John G. Barter, insurance specialist, recently discussed the subject "Professional Group Accident and Sickness Policy" for architects who are members of one of the A.I.A. Chapters in California. The matter of insurance for members has been considered and approved by the California Council of Architects.

* * *

The first Fall meeting of the Women's Architectural League was held at the home of Architect and Mrs. Abe Appleton recently.

* * *

MEMBERSHIP: The Institute has elected to the status of Member Emeritus Harris C. Allen, F.A.I.A.

Other changes in the Chapter roll are:

Advanced to Corporate Membership: Frederick M. Mann, Junior, Clement A. Mullins, Jane Moorehead Parug.

Transferred: Charlie Salyers, from San Diego Chapter; R. P. Tobin, from New Jersey Chapter.

New Corporate Members: Albert Edward Alexander, Eugene E. D. Crawford, John I. Easterly, John A. Huberty, Albert H. Larsen, Francis A. Lockwood, Ernest F. Winkler.

Associate: Clifford B. Holser.

Junior Associate: Leslie W. Niemi, Byron C. Singletary.

ARCHITECT HONORED

Richard J. Neutra, F.A.I.A., has been nominated as an Honorary Member of the Royal Institute of British Architects. An honorary degree as Doctor of the Technical Sciences has also been conferred upon Mr. Neutra by the University of Graz and Austria's Secretary of Education.

APPOINTED TO SCHOOL OF ARCHITECTURE FACULTY

Michael Czaja, Architect, has been appointed to the faculty of the School of Architecture at the University of California at Berkeley, according to a recent announcement.

Prior to engaging in architectural activities in California, Czaja served as associate professor of Architecture at Washington State College and Director of Architecture at Bennington College, Bennington, Vermont.

During the recent Summer, he served as visiting professor of design at Stanford University.

BUILDING TRADES WAGE (JOB SITES) NORTHERN AND CENTRAL CALIFORNIA

ATTENTION: The following are the PREVAILING hourly rates of compensation being paid and in effect by employers by agreement between employees and their union; or as recognized and determined by the U. S. Department of Labor. (Revised to January 1, 1948.)

CRAFT	San Francisco	Alameda and Contra Costa	Marin	Vallejo	San Mateo	San Jose	Stockton	Sacramento	Fresno
ASBESTOS WORKERS	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
BRICKLAYERS	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.50	2.25
BRICKLAYERS, HODCARRIERS	1.75	1.75	1.75	1.75	1.75	1.75	1.87½	1.87½	1.75
CARPENTERS	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
CEMENT FINISHERS	2.02½	2.02½	2.02½	2.02½	2.02½	2.02½	2.02½	2.02½	2.02½
ELECTRICIANS	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
ENGINEERS: MATERIAL HOIST	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
PILE DRIVER	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
STRUCTURAL STEEL	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
GLASS WORKERS	1.87½	1.87½	1.87½	1.87½	1.87½	1.87½	1.87½	1.87½	1.87½
IRONWORKERS: ORNAMENTAL	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
REINF. RODMEN	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
STRUCTURAL	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
LABORERS: BUILDING & CONCRETE	1.40	1.40	1.40	1.40	1.40	1.30	1.40	1.40	1.30
LATHERS	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
MARBLE SETTERS	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
MOSAIC & TERRAZZO	2.00	2.00	2.00	2.00	2.00	2.00	1.75	1.75	1.75
PAINTERS	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
PILEDRIVERS	2.12½	2.12½	2.12½	2.12½	2.12½	2.12½	2.12½	2.12½	2.12½
PLASTERERS	2.25	2.50	2.25	2.50	2.25	2.25	2.05	2.05	2.05
PLASTERERS' HODCARRIERS	2.00	2.00	2.00	2.00	2.00	2.00	1.87½	1.87½	1.87½
PLUMBERS	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
ROOFERS	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
SHEET METAL WORKERS	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
SPRINKLER FITTERS	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
STEAMFITTERS	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
STONESETTERS (MASONS)	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
TILESETTERS	2.15	2.15	2.15	1.90	2.15	1.90	1.90	1.90	1.90

Prepared and compiled by

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WANTED: Product Engineer with experience wanted as a permanent addition to the staff of an industrial Development Department located in Minnesota. Work involves product development including travel for consumer contacts. Program relates to products from wood. Submit details education, experience, references, salary requirement, photograph. All replies considered confidential and will be acknowledged. Reply Box 238, Architect and Engineer, Inc., 68 Post St., San Francisco, Calif.

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PLANNING AND RE-DEVELOPMENT LARGER COMMUNITY

(From Page 35)

We have talked much, and properly so, of urban problems and their solutions within the metropolitan city. Not all the problems, however, will stay within the city or, on the other hand, can be solved within its boundaries. There appears to be growing and continuing movement of industry and residences beyond our central city limits. This movement we call decentralization, and its effects are manifested in both the central city and its surrounding area, both rural and urbanized. Where this movement is both unguided and uncontrolled the results may be disastrous for all. Regional planning is frequently organized in such cases in an effort to minimize the evil effects and increase the possible benefits. Inquiry should now be made of regional planning as to how it regards decentralization, what it proposes to do about this mounting problem of cities, and what cities themselves may do to discourage or prevent undesirable migration of real community assets of business, industry and people.

POOR HOUSING COSTLY FOR FARM ANIMALS

Th latest comprehensive, controlled test made to determine the effect of stabling conditions on a dairy herd's milk production reveals that poor housing cost $4.81 a day in lost production. Milk output dropped from 16,025 pounds in the first 15 days of the test to 12,880 pounds in the final 15 days.

The 60-day test showed that cows kept in a drafty, uninsulated barn became ill, fluctuated widely in production and even died. A similar herd housed in a modern barn insulated full-thick with mineral wool and mechanically ventilated, maintained a steady rate of output. The owner of this barn stated he realized a 42 per cent return on his investment in ventilating equipment and insulation.

Complete details of the test, reported in a 16-page illustrated pamphlet, may be obtained without cost by writing the Construction Research Bureau, 12 East 41st Street, New York City. The uninsulated barn used in the test was selected from among those surveyed by the New Jersey College of Agriculture, when it made its 162-barn survey. The insulated barn was built from plans provided by the college.

ARCHITECT SELECTED

W. D. Peugh, Architect, San Francisco, has been selected to develop plans for the new Potrero Branch Library in San Francisco. Estimated cost $125,000.

BOOK REVIEWS
PAMPHLETS AND CATALOGUES

WADE DRAINS. Wade Manufacturing Co., Elgin, Illinois. A.I.A. File No. 29-C.

This new Catalog (W-55) is designed to make available quickly and conveniently, carefully engineered products for general or specific drainage and maintenance. Section and page headings are arranged for ready reference with each group described as to type, size, dimension, weight and price.

Contains numerous tables and illustrations. Copies available from Wade Mfg. Co., Elgin, Illinois.

A QUALITY HOME CAN COST LESS. West Coast Lumberman's Association, Portland, Oregon.

A practical and informative eight-page booklet, in four colors, which traces the construction of an actual house, and through a simple step-by-step analysis shows where today's home builder can effect economies through the proper use of lumber grades.

The booklet is designed to give the dealer practical assistance in finding proper market for low grade lumber, and to assist in reducing building costs.

Copies available from West Coast Lumbermen's Ass'n, 1410 S. W. Morrison Street, Portland, 5, Oregon.

BROCHURE ON STRAN-STEEL. Kraftile Company, Niles, California.

The Kraftile Company, Niles, California, offers a 132 page brochure on Stran-Steel lightweight framing material featuring the patented Stran-Steel nailing groove, Attachment of collateral materials, fixture installations, and framing applications on various types of structures are detailed, with drawings and illustrations by Smith, Hinchman and Gryllis, Inc., architectural and engineering firm of Detroit.

The brochure is available to architects and engineers free (normal cost 50c) when requested on architect's or engineer's letterhead from KRAFTILE COMPANY, Niles, California, or the firm's San Francisco office at 50 Hawthorne Street, Kraftile Company also offers a 23-page illustrated catalog of Stran-Steel framing for the asking.

SCHOOL BONDS APPROVED. Voters of Modesto (California) have approved $1,682,000 in bonds for the construction of new High School Buildings. Harry J. Devine of Sacramento is the Architect.

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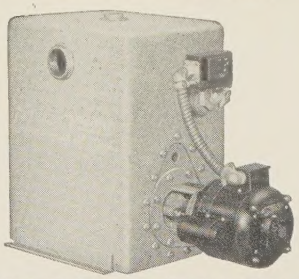

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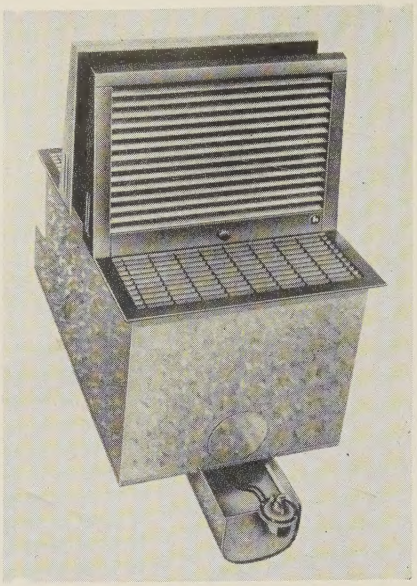
IN THE NEWS

CADDY HOUSE

The Bridges Construction Company have bid $12,432 for construction of a Caddy House for the San Jose (California) Country Club. Higgins & Root, San Jose are the architects.

NEW FLOOR FURNACE

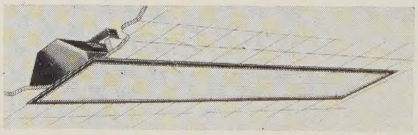
A new directional, louver-type register for the Stubby floor furnace, has been announced by the Holly Manufacturing Company of Pasadena.



Known as the "Clearflo" it produces a uniform heat discharge over the entire register face and directs the heat down and out into the room. The assembly will fit either 2 x 3" or 2 x 4" stud wall construction and may be installed from above the floor without patching. Easily cleaned they meet all A.G.A. requirements.

NEW SUNBEAM

The Sunbeam Lighting Company of Los Angeles recently announced a new product No. 903-48 comprising a deep troffer recessed unit fitted with alba-lite glass and remote control starters.

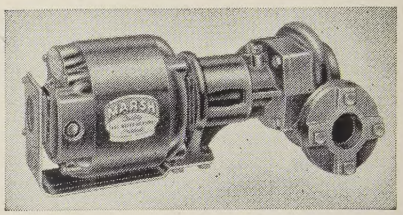


Other features include an exclusive light guard which eliminates light leaks between glass and frame and provision for easy maintenance. The unit can be used separately or in continuous runs.

NEW PUMP

A new two-position circulating pump (horizontal or vertical) has been announced by the Marsh Heating Equipment Division of the Jas P. Marsh Corp'n of Skokie, Ill.

Other features of the pump include, special rubber coupling with brass inserts that is secure to

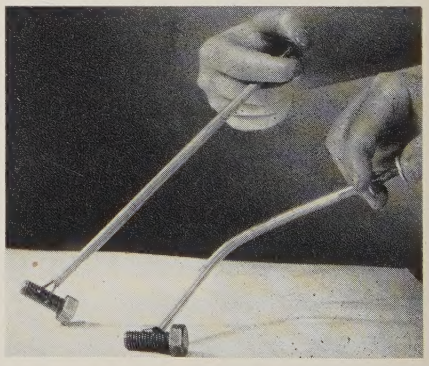


the motor shaft and pump shaft to eliminate transmission vibration, protecting bearings, and oil cup seal which is water tight.

Available for 1¼" or 1½" pipe; operates on 1/6 h.p. motor, single phase, 60 cycle, 110 volt unit.

SPECIALTY TOOL

A specialty tool for hard to reach parts and places has just been put on the market by EMCO ENTERPRISES of Chicago, Illinois. Precision made, acid proof and cadmium plated it can be taken apart for cleaning.



The shaft is flexible cable encased in flexible housing with expanding and retracting fingers which enable it to reach in and grab a tight hold on anything, with ample flexibility to work around corners or S-turns.

ARCHITECT SELECTED

James H. Mitchell, San Francisco architect, has been selected to design the new Bay Park grammar school in Burlingame, California.

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Of the Architect and Engineer, published monthly at San Francisco, Calif., for October 1, 1948.

State of California } SS.
City and County of San Francisco }

Before me, a notary public in and for the state and county aforesaid, personally appeared L. B. Penhorwood, who, having been duly sworn according to law, deposes and says that she is the Business Manager of The Architect and Engineer, and that the following is to the best of her knowledge and belief, a true statement of the ownership, management (if daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946, (section 537, Postal Laws and Regulations), printed on the reverse of this form, to wit:

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Publisher, The Architect and Engineer, Inc., 68 Post St., San Francisco, Calif.

Editor: Edwin H. Wilder, 68 Post St., San Francisco, Calif.

Managing Editor—None.

Business Manager, L. B. Penhorwood, 68 Post St., San Francisco, Calif.

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5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is. (This information is required from daily publications only.)

L. B. Penhorwood, Business Mgr.

Sworn to and subscribed before me this 30th day of September, 1948.

(Seal) IRENE CRESPI

Notary Public in and for the City and County of San Francisco, Calif.

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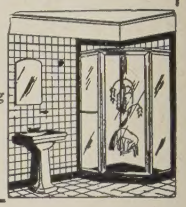

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